

Haley & Aldrich, Inc.
1956 Webster Street
Suite 450
Oakland, CA 94612

Tel: 510.879.4544
Fax: 510.251.1304
HaleyAldrich.com



28 February 2014
File No. 39800-001

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Attention: Mr. Max Shahbazian, PG

Subject: Vapor Intrusion Evaluation Report
1160 Kern Avenue
Sunnyvale, California

Dear Mr. Shahbazian:

Haley & Aldrich, Inc., on behalf of Advanced Micro Devices, Inc. (AMD), has prepared this Vapor Intrusion Evaluation Report for the former Monolithic Memories, Inc. facility located at 1160 Kern Avenue in Sunnyvale, California in response to the 3 January 2014 request issued by the California Regional Water Quality Control Board – San Francisco Bay Region.

Please contact any of the undersigned if you have any questions, or require additional information.

Sincerely yours,
HALEY & ALDRICH, INC.

A handwritten signature in black ink, reading "Peter Scaramella".

Peter Scaramella
Senior Risk Assessor

A handwritten signature in black ink, reading "Michael Calhoun".

Michael Calhoun, PG, CHG
Senior Technical Specialist / Project Manager

A handwritten signature in blue ink, reading "P. D." followed by a long horizontal stroke.

Peter Bennett, PG, CHG
Lead Hydrogeologist and Vice President

Enclosures

cc: United States Environmental Protection Agency; Attn: Melanie Morash
Advanced Micro Devices, Inc.; Attn: Do Cao
Advanced Micro Devices, Inc.; Attn: Brett Stringer

**VAPOR INTRUSION EVALUATION REPORT
1160 KERN AVENUE
SUNNYVALE, CALIFORNIA**

by

**Haley & Aldrich, Inc.
Oakland, California**

for

**Advanced Micro Devices, Inc.
Sunnyvale, California**

**File No. 39800-001
28 February 2014**

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VAPOR INTRUSION EVALUATION REPORT

1160 Kern Avenue

Sunnyvale, California

1. INTRODUCTION

On behalf of Advanced Micro Devices, Inc. (AMD), Haley & Aldrich, Inc. (Haley & Aldrich) has prepared this report summarizing the vapor intrusion evaluation performed for the former Monolithic Memories, Inc. (MMI) facility located at 1160 Kern Avenue in Sunnyvale, California (the Site; Figures 1 and 2). The Site comprises a portion of the former MMI Superfund Site located at 1165/1175 East Arques Avenue. This report is submitted in response to the 3 January 2014 letter from the California Regional Water Quality Control Board, San Francisco Bay Region (Water Board) to AMD requesting additional information to further evaluate the potential for vapor intrusion (Water Board, 2014). The Water Board letter requests AMD to submit a report comparing the methods used and conditions under which a vapor intrusion evaluation was completed previously at the Site with those methods and conditions recommended in the following United States Environmental Protection Agency (USEPA) documents:

- 2013 Office of Solid Waste and Emergency Response External Review Draft – Final Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from the Subsurface to Indoor Air (External Review Draft OSWER VI Guidance).
- 3 December 2013, USEPA Region 9 Guidelines and Supplemental Information Needed for Vapor Intrusion Evaluations at South Bay National Priority List (NPL) Sites (Region 9 Guidelines).

During a 17 December 2013 meeting with AMD and Haley & Aldrich, the Water Board and USEPA Region 9 staff expressed appreciation for the vapor intrusion studies AMD has already completed at the Site, but indicated that a request for additional information on the vapor intrusion work completed would be forthcoming to ensure consistency with USEPA's draft guidance and guidelines. Although the Water Board is the lead agency for the Site¹, USEPA Region 9 is providing technical assistance to Water Board staff on vapor intrusion issues.

In the following sections, this report presents a description of the Site background, an evaluation of the prior vapor intrusion work completed at the Site, an evaluation of vapor intrusion pathway with respect to the U.S. EPA Region 9 Guidelines, and conclusions.

¹ *Site Cleanup Requirements Order Number 91-139* (the Order) was issued on 20 September 1991, by the Water Board. Although the Site is designated as a Superfund Site, U.S. EPA delegated oversight authority to the Water Board on 22 October 1987 under the Multi-Site Cooperative Agreement.

2. SITE BACKGROUND

Site Cleanup Requirements Order Number 91-139 was issued on 20 September 1991 by the Water Board. The Order designates the 1165/1175 Arques Avenue Superfund Site, which includes the 1160 Kern Avenue property, as a portion of the area defined in the Record of Decision (ROD; USEPA 1991) as Operable Unit 1 (OU1) of the Eastern Sunnyvale Study Area (Figure 1). OU1 begins approximately 2,000 feet south of the Site and extends approximately 4,000 feet north of the Site, beyond Highway 101. OU1 is subdivided into three subunit areas (Subunits 1, 2, and 3). The 1165/1175 Arques Avenue Superfund Site is designated as Subunit 2 of OU1 and consists of two adjacent properties regulated under the Order: 1165/1175 E. Arques Avenue and 1160 Kern Avenue (Figure 1).

MMI began leasing the 1160 Kern Avenue property in 1974; prior to 1974, Amdahl Corporation occupied the property for computer product assembly (USEPA, 1991). In 1987, AMD merged with MMI and assumed responsibility for the 1160 Kern property. The building on this property, also known as “Building 3”, was used for office space, product handling and testing, and administration until 2003, when AMD closed the building. The lease on the property was terminated at the end of 2006. The 1160 Kern property currently is owned by Resource Area for Teaching (RAFT), a non-profit organization for teachers, which operates a warehouse on the property.

The property immediately to the south previously contained two buildings, referred to as Building 1 (1165 E. Arques Avenue) and Building 2 (1175 E. Arques Avenue). These buildings were used by MMI and AMD for semiconductor manufacturing operations until 1991, when operations ceased. In April 2005, AMD donated the 1165/1175 E. Arques Avenue property to a local charity, which then sold the property to TWC Storage, LLC (TWC). TWC purchased the property intending to redevelop the Site for use as a self-storage facility. Both Building 1 and Building 2 and associated facilities, including the on-Site groundwater treatment system, were demolished to accommodate property redevelopment in the spring and summer of 2005. During demolition activities on 15 July 2005, a transformer located on a pad in the northwest corner of the Site was damaged by TWC’s contractors, spilling approximately 250 gallons of tetrachloroethene (PCE) to the ground surface (Clayton, 2005). Hereafter, this discharge is referred to as the “PCE spill”. An Administrative Civil Liability Order (ACL), No. R2-2006-0030, was issued on 10 May 2006 to TWC by the Water Board; AMD is not named as a discharger on the ACL and TWC is responsible for cleanup and monitoring of the PCE spill.

The Site hydrostratigraphy has been classified into three water bearing units for convenience: the A, B, and C Zones (Arcadis, 2001). The A Zone extends to a depth of approximately 15 to 25 feet below ground surface (bgs), and is separated from the B Zone by the A-B aquitard (Canonie Environmental, 1986). The B Zone begins at approximately 30 to 45 feet bgs. It is separated from the C Zone by the B-C aquitard (Canonie Environmental, 1986). The B-zone is subdivided into an upper B1 Zone overlying the B2 Zone. Depth to water at the Site is approximately 10 feet bgs. Groundwater in the A and B zones generally flows to the north/northeast.

The primary chemicals of concern (COCs) in groundwater related to former MMI operations (referred to as “MMI Indicator Compounds”) include PCE, 1,1-dichloroethane (1,1-DCA), 1,2-dichlorobenzene (1,2-DCB), and chlorobenzene (Haley & Aldrich, 2014). These COCs have been detected primarily in samples collected from shallow (A-Zone) groundwater beneath the Site.

Other release sites exist in the vicinity of the Site and to the south (hydraulically upgradient); groundwater beneath the Site is affected by historical releases migrating from at least one of these other

release sites. Groundwater beneath the Texas Instruments (TI, formerly National Semiconductor corporation [NSC]) facility located upgradient of the Site at 2900 Semiconductor Drive (Subunit 1 of OU1), has been reported to contain trichloroethene (TCE), cis-1,2-dichloroethene (cDCE), 1,1-dichloroethene (1,1-DCE), 1,1,1-trichloroethane (1,1,1-TCA), and Freon 113 (“OU-1 Indicator Compounds”, T&R, 2013). These same compounds have been detected in groundwater samples beneath the Site in both the A Zone and deeper B Zone, and have been attributed to upgradient sources. NSC (now TI) assumed responsibility for operation and monitoring of the groundwater extraction network operating beneath the entire OU1, including Subunit 2, on 31 January 2002.

3. EVALUATION OF PRIOR VAPOR INTRUSION WORK COMPLETED AT THE SITE

In the following sub-sections, the results of vapor intrusion assessment activities and mitigation efforts completed at the Site are described.

3.1 Shallow (A-Zone) Groundwater Monitoring

Annual groundwater monitoring is currently conducted at the well locations shown on Figure 2. Analytical results for COCs in groundwater samples collected as part of the monitoring program for 2011 through 2013 are presented in Table I.

In Table I, two different sets of groundwater screening level concentrations are compared to Site groundwater concentrations:

- Environmental Screening Levels (ESLs) for the evaluation of potential vapor intrusion published by Water Board (2013). Default groundwater ESLs for typical Bay Area sites (i.e., fine-coarse mix of soils) were selected since the shallow lithology at the Site contains silty clay (to depths of about 7 to 12 feet bgs) with layers of sand and gravel (A Zone) (Canonie Environmental, 1986). ESLs are used to assess the groundwater concentration that would result in an indoor air concentration equal to a cancer risk of one-in-one million or 1×10^{-6} and non-cancer hazard quotient of 1 based on California Environmental Protection Agency toxicity criteria; and
- Vapor Intrusion Screening Levels (VISLs) published by USEPA (2013c). VISLs are developed by applying a non-chemical specific default attenuation factor (0.001) and the dimensionless Henry's Law Constant to target indoor air concentrations (e.g., indoor air Regional Screening Levels [RSLs]) (USEPA, 2013b).

The ESL and VISL screening level groundwater concentrations are different because they are derived from different assumptions used by the Water Board and the USEPA regarding:

- The amount of attenuation (concentration decrease due to dilution) that occurs during the transport of vapors from groundwater to indoor air, and
- For some COCs, there is a difference between the toxicity criteria used to develop the target indoor air concentrations that would represent an acceptable risk level for building occupants (i.e., cancer risk of one-in-one million or 1×10^{-6} ; non-cancer hazard quotient of 1).

The VISLs are lower than the ESLs. If groundwater COC concentrations are below their respective ESLs or VISLs, it can be concluded that vapor intrusion from groundwater does not pose an unacceptable risk. Concentrations of COCs above their respective VISLs and ESLs do not necessarily indicate a risk is present, but suggest further evaluation is warranted.

No VOCs were detected in groundwater samples collected between 2011 and 2013 at concentrations above their respective ESLs. PCE, TCE, and vinyl chloride (VC) were detected at concentrations above their respective VISLs:

- PCE was detected in one groundwater sample at a concentration of 66 micrograms per liter ($\mu\text{g/L}$) at one monitoring well (MM17A); the VISL for PCE is 65 $\mu\text{g/L}$. This well has

historically been shown to be impacted by PCE from the 2005 PCE spill (Haley & Aldrich, 2014).

- TCE was detected in groundwater samples collected at ten monitoring wells (98A/B1, ME43A, MM01A, MM07A, MM17A, MM31A, MM34A, MM37A, MM40A, and MW18AR) at concentrations greater than the VISL (7.4 $\mu\text{g/L}$). The highest concentrations of TCE were detected in monitoring wells 98A/B1, MM31A, and MM37A, which are located south and west (i.e., upgradient) of the Site, indicating the impact of upgradient sources on groundwater beneath Subunit 2.
- VC was detected in groundwater samples collected at 4 monitoring wells (98A/B1, MM07A, MM17A, and MM40A) at concentrations greater than the VISL (2.5 $\mu\text{g/L}$). The highest concentration of VC was detected at monitoring well MM17A, likely due to ongoing biodegradation of PCE and other breakdown products related to remediation of the 2005 PCE spill.

In its recently published Region 9 Guidelines, USEPA applied a 5 $\mu\text{g/L}$ TCE groundwater concentration to define the extent of vapor intrusion evaluation areas (USEPA, 2013d). Concentrations of TCE above 5 $\mu\text{g/L}$ were detected in ten monitoring wells (98A/B1, ME43A, MM01A, MM07A, MM17A, MM31A, MM34A, MM37A, MM40A, and MW18AR). Concentrations of COCs in Site A-Zone monitoring wells have remained stable or shown a decreasing trend over time (Haley & Aldrich, 2014); as groundwater quality continues to improve, the potential for vapor intrusion to impact indoor air quality is expected to decrease.

3.2 2011 Indoor Air Sampling

In August 2011, indoor air sampling was performed at the 1160 Kern Avenue building in general accordance with the Final Work Plan for Indoor Air Investigation (IA Work Plan; AMEC, 2011a). Prior to collecting indoor air samples, a building survey and Site walk was conducted with Water Board and USEPA staff on 2 June 2011 to identify appropriate indoor and outdoor air sampling locations. The Site walk included field screening to evaluate potential preferential vapor intrusion pathways using a ppbRAE, a low-level photoionization detector (PID) with a reporting limit of 1 part per billion. On 10 August 2011, a second Site walk was conducted to identify specific sample locations, complete building survey forms, and inventory products that could potentially contain VOCs.

Indoor and outdoor air samples were collected on 21 August 2011. The HVAC units were de-activated for approximately 36 hours prior to sampling, in order to provide a worst-case scenario for potential vapor intrusion. Indoor air samples were collected with the air intakes at approximately 3 to 5 feet above floor level. Preferential pathway samples were placed on the floor adjacent to the potential pathway intended for evaluation. Indoor air sample locations are presented on Figure 3. Outdoor (ambient) air samples were collected in the grass adjacent to the parking lot north (i.e., upwind) of the building and on the roof.

Meteorological data summaries for measurements collected at the time of indoor air sampling at the nearby Moffett Field Meteorological Station², located in Moffett Field, Mountain View, California are included as Appendix A. A summary of outside air temperatures during the August 2011 and subsequent indoor air sampling is presented in Table II. Analytical results of indoor and outdoor air samples are presented in Table III.

² http://www.wunderground.com/history/airport/KNUQ/2013/3/26/DailyHistory.html?req_city=NA&req_state=NA&req_statename=NA.

As shown in Table III, analytical results of indoor air samples are evaluated by comparison to USEPA RSLs for indoor air in non-residential buildings (USEPA, 2013c). For COCs with California-modified indoor air screening levels published by California Department of Toxic Substances Control (DTSC) (2013), indoor air results are compared to the more conservative, California-modified indoor air screening levels. The RSLs and California-modified indoor air screening levels are conservative, long-term screening levels that correspond to an acceptable risk level (i.e., cancer risk of one-in-one million or 1×10^{-6} ; non-cancer hazard quotient of 1); concentrations of COCs below their respective RSLs or California-modified indoor air screening levels can be considered to pose no significant risk. Concentrations of COCs above their respective RSLs or California-modified indoor air screening levels do not necessarily indicate a risk is present, but rather suggest that further evaluation is warranted.

PCE was detected in three breathing zone, indoor air samples at concentrations slightly exceeding the commercial/industrial California-modified indoor air screening level. PCE and TCE were detected at higher concentrations (relative to the other indoor air samples) in a preferential pathway sample collected in the women's warehouse restroom, suggesting the potential influence of a preferential pathway nearby.

Analytical results of indoor air samples were evaluated in a human health risk assessment (HHRA); the results of the HHRA indicated that concentrations of PCE and TCE detected in indoor air do not present a public health risk (AMEC, 2011b).

3.3 December 2011 and July 2012 Indoor Air Sampling

On 13 December 2011, TrapGuard® drain inserts were installed in each of the drains in the warehouse and lobby restrooms to mitigate the potential for vapors potentially present in the drains to enter the rooms. After installing the drain inserts, indoor air samples were collected on 22 December 2011 at four potential preferential pathway locations, including the central floor drain in the women's warehouse bathroom, with the HVAC system de-activated to confirm the effectiveness of the mitigation measures (AMEC, 2012). Although concentrations of PCE and TCE were reduced in the samples collected in the women's warehouse bathroom in December 2011 compared to August 2011, PCE and TCE were detected at concentrations exceeded screening criteria for commercial/industrial air in the two preferential pathway samples collected on the floor of the women's warehouse restroom adjacent to the central floor drain (AMEC, 2012). A second round of confirmation sampling occurred in July 2012, with concentrations of PCE and TCE detected at concentrations slightly higher than the December 2011 sampling event (Haley & Aldrich, 2013).

3.4 2013 Preferential Pathway Investigation

On 24 May 2013, a preferential pathway investigation was completed at the Site in general accordance with the Revised Work Plan for Preferential Pathway Investigation (AMEC, 2013). A total of 34 screening-level breathing zone and preferential pathway samples were collected and analyzed in real-time by KD Analytical under the supervision of representatives from Haley & Aldrich and AMEC, using a portable gas chromatograph/mass spectrometer (GC/MS)³. Samples were collected at a rate of approximately 100 milliliters per minute, and analyzed using the quantitative mode based on the method developed for indoor air characterization at Hill Air Force Base in Utah (Gorder and Dettenmaier, 2011). The results of the preferential pathway study suggest that vapor intrusion was occurring

³ The Inficon Hapsite® Smart Plus GC/MS previously calibrated by KD Analytical for VOCs including PCE, TCE, and breakdown products.

primarily through the floor drains and cracks in the floor of the women's warehouse restroom, based on the relatively higher concentrations of TCE in preferential pathway samples collected at those locations compared to the breathing zone samples (Haley & Aldrich, 2013).

Based on the results of the preferential pathway study, AMD proposed to conduct vapor intrusion efforts in the restrooms, as described in the Preferential Pathway Investigation Report and Proposed Mitigation Measures (Haley & Aldrich, 2013).

3.5 September 2013 Indoor Air Sampling

On 27 September 2013, prior to the start of vapor intrusion mitigation efforts, indoor air samples were collected at the Site in general accordance with the IA Work Plan (AMEC, 2011a). Indoor air samples were collected while the HVAC system servicing the volunteer and front office areas was active to evaluate indoor air concentrations during a typical exposure scenario. Indoor air samples were collected at the women's warehouse restroom (IA-2), volunteer room (IA-5), warehouse/storage room (IA-6), and women's lobby restroom (IA-9). In addition, one outdoor air sample was collected from the roof of the building adjacent to the front office HVAC intake. The analytical laboratory report and Data Usability Summary Report is included in Appendix B.

TCE was detected at a concentration of $5.2 \mu\text{g}/\text{m}^3$ in the sample collected at the women's warehouse restroom, which is above the commercial RSL of $3.0 \mu\text{g}/\text{m}^3$. TCE was not detected in any other samples, and no other target analytes were detected at concentrations above the laboratory reporting limit⁴. The results of this pre-mitigation indoor air sampling were submitted to Water Board and USEPA via email on 10 October 2013.

3.6 HVAC System Evaluation and Improvements

On 26 and 27 September 2013, an evaluation of the HVAC system was performed at the Site by Air Systems, Inc. (ASI), under the direction of Haley & Aldrich. Based on the results of this evaluation, the following two improvements to the HVAC system were implemented:

- **Set minimum outside air (OSA) intake rates.** Two separate rooftop HVAC systems service the front offices and volunteer room, and each unit operates with a variable OSA intake that is controlled by an adjustable economizer. The economizer automatically adjusts the damper opening based on the thermostat settings and the outside air temperature. For example, the damper would reduce OSA intake when temperatures are higher outside than inside, and the HVAC system is cooling air. The OSA intake was completely closed for the office area and 5 percent open for the volunteer room during the 26 September 2013 inspection. To be consistent with California State Energy Code and Occupational Safety and Health Administration (OSHA) regulations for minimum supply of OSA for commercial buildings, a minimum OSA intake on each damper was set so that the OSA for each area of the building is at least 0.15 cubic feet per minute per square foot (CCR Title 24, Part 6, Subchapter 3, Section 121). The indoor air exchange rate for the Site also was increased by increasing the OSA intake.
- **Installation of vents in the bathroom doors.** Negative pressure was observed in every bathroom except for the men's bathroom in the warehouse. Negative pressure is likely caused by the exhaust units in each bathroom, which are removing more air than is currently supplied

⁴ The laboratory reporting limits for PCE and VC were above the commercial/industrial screening levels (i.e., California-modified indoor air screening levels).

by the passive supply ducts. Vents were installed in each bathroom door on 21 October 21 2013 to allow for sufficient ventilation so negative pressure will not be generated by the exhaust fans.

3.7 Mitigation of Preferential Pathways in Restrooms

Retro-Coat™ Vapor Intrusion Coating System (Retro-Coat™ system) was applied to the floors in the warehouse restrooms to mitigate the migration of COCs from the sub-slab to indoor air in January 2014. The Retro-Coat™ system is manufactured by Land Science Technologies [Land Science] of San Clemente, California specifically to mitigate vapor intrusion. Under the direction of Haley & Aldrich, American Industrial Coatings (AIC), an application contractor based in Esparto, California, and licensed by Land Science to apply the Retro-Coat™ system, removed the existing floor covering, applied the Retro-Coat™ system, and reinstalled the restroom fixtures. A Site-specific health and safety plan (HASP) was prepared prior to conducting field activities.

Restroom fixtures, including partitions and sink cabinets, and the existing ceramic floor tile were removed from the warehouse bathrooms on 15 January 2014. The exposed concrete slab was shot-blasted to provide a smooth surface for application of the floor covering. The shot-blasting device included a self-contained dust collector to reduce dust generation. Excess dust and debris were removed with a hand-held vacuum cleaner.

The Retro-Coat™ system was applied in the following five steps, in accordance with Land Science's specifications:

1. AIC sealed cracks, holes, saw cuts, and depressions near the floor drains in the exposed concrete floor slab with Retro-Coat™ GEL (Gel).
2. AIC applied 6 mil (1 mil equals 0.001 inch) of Retro-Coat™ PRIMER (Primer), a two-part epoxy primer, in each restroom on 16 January 2014.
3. AIC applied the VOC-impervious Retro-Coat™ material in the men's restroom on 16 January 2014 and in the women's restroom on 17 January 2014. The two-part material was applied in two 10-mil coats (20 mil total) in each restroom.
4. AIC applied approximately 27 pounds of green/gray color chips on top of the Retro-Coat™ material until the chips completely covered the top of the Retro-Coat™ material to provide a decorative finish and texture.
5. AIC coated the floor with a two-part clear epoxy sealer, Retro-Coat™ SEALER (Sealer), on 17 and 20 January 2014. Initially, only 15 mil of Sealer was applied, but an additional 13 mil of Sealer was applied to provide a smoother finish at the building owner's request (28 mil total per restroom).

Following the application of the Retro-Coat™ system, two additional mitigation measures were completed:

- A sewer conduit was observed to penetrate the concrete floor slab behind the shared wall between the two bathrooms. The area surrounding the sewer conduit was sealed with the Retro-Coat™ material.

- The TrapGuard® drain inserts, which were installed in each of the drain in the warehouse and lobby restrooms in December 2011, were replaced with rubber Dranjer™ D-R2 drain inserts. The rubber Dranjer™ D-R2 drain inserts are designed to permit the unrestricted flow of water into floor drains while preventing radon gas from entering the building.

Upon completion of mitigation measures in the warehouse bathrooms, the existing restroom fixtures were re-installed in the restrooms.

3.8 February 2014 Indoor Air Sampling

On 10 February 2014, indoor air samples were collected at the Site in general accordance with the IA Work Plan (AMEC, 2011a) with the HVAC system active to confirm the effectiveness of the recent mitigation measures. Indoor air samples were collected at the women's warehouse restroom (IA-2), volunteer room (IA-5), warehouse/storage room (IA-6), and men's warehouse restroom (IA-9). In addition, one outdoor air sample was collected at the parking lot. The analytical laboratory report and Data Usability Summary Report (DUSR) is included in Appendix C.

TCE was detected at a concentration of 3.5/3.3 $\mu\text{g}/\text{m}^3$ in the primary/duplicate samples collected at the women's warehouse restroom, which are lower than its previous concentration, but slightly above the commercial/industrial RSL of 3.0 $\mu\text{g}/\text{m}^3$. TCE was detected at concentrations below the commercial/industrial RSL in the indoor air samples collected in the volunteer room (0.97 $\mu\text{g}/\text{m}^3$), warehouse/storage room (0.98 $\mu\text{g}/\text{m}^3$), and men's warehouse restroom (0.91 $\mu\text{g}/\text{m}^3$).

PCE was detected in every indoor air sample collected, but at concentrations below the commercial/industrial California-modified indoor air screening level.

3.8.1 Concentration Trend for TCE

Figure 4 presents a comparison of concentrations of TCE measured indoor air at the women's warehouse restroom, volunteer room, and warehouse/storage room. The commercial/industrial RSL for chronic exposures (3 $\mu\text{g}/\text{m}^3$) and the USEPA Region 9 short-term response action level TCE (9 $\mu\text{g}/\text{m}^3$ for an 8-hour workday) also are included in Figure 4.

In samples collected in the women's warehouse restroom, the TCE concentration has decreased from a maximum detected concentration of 27 $\mu\text{g}/\text{m}^3$ in a preferential pathway sample collected in August 2011 to 3.5/3.3 $\mu\text{g}/\text{m}^3$ in a breathing zone sample collected in February 2014. The decreasing trend demonstrates that mitigation measures implemented at the women's warehouse restroom have reduced TCE concentrations.

TCE has not been detected at a concentration that exceeds the commercial/industrial RSL in any samples collected in the volunteer or warehouse storage rooms, or any area that is typically occupied for most of the work day (i.e., conference room or lobby). A downward trend is also evident for the TCE concentrations measured in the volunteer and warehouse/storage rooms.

3.8.2 2014 Update to HHRA

Analytical results for indoor air samples collected in February 2014 were evaluated as an update to the 2011 HHRA (AMEC, 2011b). The HHRA evaluation consisted of the following steps:

- **Data Evaluation and Exposure Point Concentration.** All chemicals detected in indoor air samples collected in February 2014 were evaluated as chemicals of potential concern (COPCs). The maximum detected concentrations for indoor air samples collected in the volunteer room (IA-5) and warehouse/storage room (IA-6) were used to estimate exposure for commercial/industrial occupants of the building. Analytical results for indoor air samples collected in restrooms were not included in this evaluation since restrooms typically are not occupied for more than 10 minutes at a time, three or four times per day. Further, RAFT personnel have confirmed that the warehouse restrooms are infrequently used.

- **Exposure Assessment.** Potential exposures by indoor commercial/industrial workers were evaluated in this HHRA; workers were assumed to be present for 8 hours per day for 250 days per year for 25 years (USEPA, 1991; DTSC, 2005). An exposure concentration (EC) was calculated to estimate chronic, inhalation exposures using the equations presented by the USEPA in Risk Assessment Guidance for Superfund (RAGS) Part F (USEPA, 2009).

- **Toxicity Assessment.** The toxicity criteria and specific references for these criteria are presented in Table IV. These criteria were selected as the most conservative (i.e., most protective) of values available from the following USEPA and California Environmental Protection Agency sources:
 - Office of Environmental Health Hazard Assessment (OEHHA) Toxicity Criteria Database, online database.
 - OEHHA Chronic Reference Exposure Levels.
 - California Air Resources Board (ARB) Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values.
 - U.S. EPA Integrated Risk Information System (IRIS) online database.
 - Other U.S. EPA toxicity criteria, as summarized by USEPA in the RSL tables (USEPA, 2013).

- **Risk Characterization.** Potential noncarcinogenic health effects and carcinogenic health risks are characterized separately.
 - Potential adverse noncarcinogenic health effects are evaluated using the hazard index (also called HI) approach, which is the ratio of the estimated exposure to the reference concentration. A hazard quotient less than or equal to 1 indicates that the predicted exposure to that chemical should not result in an adverse noncarcinogenic health effect (USEPA, 1989). It should be noted that hazard quotients or hazard indices greater than 1 do not necessarily mean that adverse health effects will be observed.
 - Carcinogenic health risks are defined in terms of the increased probability of an individual developing cancer as the result of exposure to a given chemical at a given concentration. Estimates of lifetime excess cancer risk less than one-in-one-million (1×10^{-6}) are considered *de minimus*, a risk level that is so low as to not warrant any further investigation or analysis (USEPA, 1990a). The U.S. EPA considers 1×10^{-6} to 1×10^{-4} to be the target range for acceptable risks at sites where remediation is considered (USEPA, 1990a and 1990b). It should be noted that cancer risks in the 1×10^{-6} to 1×10^{-4} range or higher do not necessarily

mean that adverse health effects will be observed. Current methodology for estimating the carcinogenic potential of chemicals is believed to not underestimate true risk, but could overestimate the true risk by a considerable degree.

As presented in Table IV, the total hazard index for potential exposure to COPCs in indoor air is 0.1, which is well below the acceptable level of 1, and the total lifetime excess cancer risk is 8×10^{-7} , which is below USEPA's *de minimus* risk level. In addition, the total hazard index and lifetime excess cancer risk were estimated for a hypothetical exposure scenario of one hour per day in the women's warehouse restroom and seven hours per day in the occupied areas of the building (Table V). For this hypothetical scenario, the total hazard index for potential exposure to COPCs in indoor air is 0.2, which is well below the acceptable level of 1, and the total lifetime excess cancer risk is 1×10^{-6} , which is equal to the USEPA's *de minimus* risk level. Since an exposure time of one hour per day in the warehouse bathroom is overly conservative, the total lifetime excess cancer risk associated with potential exposure to COPCs in indoor air is less than or equal to the USEPA's *de minimus* risk level. In summary, the results of this HHRA indicate that chemicals measured in indoor air in February 2014 do not present a public health risk.

3.9 February 2014 Preferential Pathway Investigation

On 25 February 2014, indoor air samples were collected at the Site in general accordance with the with the methods described in the 2013 Revised Work Plan for Preferential Pathway Investigation (AMEC, 2013) to directly assess the effectiveness of the floor sealing and drain plugs. The results of this investigation will be described in an addendum to this report, scheduled to be submitted to the Water Board on 31 March 2014.

4. EVALUATION OF VAPOR INTRUSION PATHWAY WITH RESPECT TO USEPA GUIDELINES

In its letter dated 3 January 2014, Water Board requested additional evaluation of the vapor intrusion pathway for the Site with respect to the recently published USEPA guidelines (Water Board, 2014). As described above, the vapor intrusion evaluation was completed at the Site in general accordance with the External Review Draft OSWER VI Guidance. In this section, data collected as part of the vapor intrusion evaluation are compared to recommendations in the recently published Region 9 Guidelines (USEPA, 2013d).

Item #1 – Interim TCE Indoor Air Short-term Response Action Level

For commercial/industrial buildings with an 8-hour workday, the interim short-term response action level (RAL) for TCE in indoor air is $9 \mu\text{g}/\text{m}^3$. TCE has not been detected at a concentration that exceeds the short-term RAL in breathing zone samples collected at the Site.

TCE was detected in preferential pathway samples collected at the floor of the women's warehouse restroom in August 2011 and July 2012 at concentrations that exceed the short-term RAL. Two subsequent breathing zone samples were collected in the women's warehouse restroom, and TCE was detected at concentrations below the short-term RAL in both samples:

- In September 2013, indoor air samples were collected with the HVAC system active to evaluate a typical exposure scenario; TCE was detected at a concentration of $5.2 \mu\text{g}/\text{m}^3$.
- In February 2014, indoor air samples were collected to evaluate the effectiveness of recently completed mitigation measures with the HVAC system active; TCE was detected a concentration of $3.5/3.3 \mu\text{g}/\text{m}^3$.

Item #2 – PCE Indoor Air Screening Level

As presented in Table II, analytical results for PCE in indoor air are compared to the California-modified indoor air screening level (DTSC, 2013) for a commercial/industrial scenario ($2.08 \mu\text{g}/\text{m}^3$). PCE was previously detected at concentrations that exceed the California-modified indoor air screening level in breathing zone samples in 2011 in the conference, volunteer, and warehouse/storage rooms. However, PCE was not detected at concentrations exceeding the California-modified indoor air screening level in indoor air samples collected following the completion of recent mitigation measures in 2014.

Item #3 – Residential Building Sampling Approach – Multiple Rounds of Sampling including Colder Weather and Crawl Space

No residential buildings are located on-property. Therefore, this guideline is not applicable to the vapor intrusion evaluation performed at the Site.

Item #4 – Commercial Building Sampling Approach – Building Ventilation System (HVAC)-Off, HVAC-On and Pathway Sampling

Three separate indoor air sampling events were completed with the HVAC system off (August 2011, December 2011, and July 2012), and these sampling programs included the collection of breathing zone samples from the conference room, volunteer room, lobby, and warehouse, and preferential pathway samples at the floor of the warehouse and lobby restrooms. Two indoor air sampling events were completed with the HVAC system on (September 2013 and February 2014), and included the collection of breathing zone samples from the warehouse restrooms, volunteer room, and warehouse.

As described in Section 3.4, a preferential pathway investigation was completed at the Site in May 2013.

Item #5 – On-Property Study Area Building Sampling

The only building located on-Site is the 1160 Kern Avenue building; the vapor intrusion evaluation described above was completed at this building.

Item #6 – Phased Approach and Clarification of Vapor Intrusion Off-Property Study Area to Include Buildings Overlying 5 µg/L TCE Shallow-Zone Groundwater Contamination

As previously discussed, groundwater upgradient, beneath, and downgradient of the Site is impacted by TCE from upgradient, off-Site releases, including the TI (formerly NSC) Site. Buildings north (downgradient) of the 1160 Kern Avenue Site overlie Subunit 3 of OU1, which is impacted by the TI groundwater plume. TI has submitted a work plan to the Water Board for investigation of vapor intrusion in buildings in Subunit 3 (Treadwell & Rollo, 2013b).

5. CONCLUSIONS

The vapor intrusion evaluation at the Site was completed in accordance with the External Review Draft OSWER VI Guidance and recently published Region 9 Guidelines. COCs present in groundwater at the Site do not appear to be impacting indoor air at levels that would pose an unacceptable health risk.

Following the completion of mitigation work performed in the warehouse bathrooms in January 2014, TCE was detected at a concentration slightly above the commercial/industrial RSL. The effectiveness of the mitigation efforts performed in the warehouse bathrooms were further assessed with a preferential pathway investigation on 25 February 2014. The results of this investigation will be described in an addendum to this report.

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TABLES

TABLE I
SUMMARY OF ANALYTICAL RESULTS FOR SHALLOW (A-ZONE) GROUNDWATER SAMPLES¹
 1160 KERN AVENUE
 SUNNYVALE, CALIFORNIA

Concentrations reported in micrograms per liter (µg/L)

Well ID	Screen Interval (feet bgs)	Sampling Date	PCE	TCE	cDCE	tDCE	VC	1,1-DCE	1,1-DCA	1,2-DCB	1,1,1-TCA	Freon 113
98A/B1	11.5 - 26.5	10/12/2011	2.8 ²	250	250	1.9	4.4	3.7	7.2	1.0	9.6	25
		10/9/2012	5.6	170	220	2.6	<1.3 ³	2.6	9.2	<1.3	6.4	22
		10/16/2013	3.5	160	180	1.9	<1.3	2.8	7.9	<1.3	6.8	24
101A	23.5 - 28.5	10/12/2011	<0.5	2.2	2.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		10/9/2012	<0.5	2.7	3.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
		10/16/2013	<0.5	4.7	9.3	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	<2.0
ME43A	9.5 - 26.5	10/11/2011	10	50	140	2.7	1.9	0.59	<0.5	6.9	<0.5	<0.5
		10/9/2012	8.1	38	97	1.9	<1.0	<1.0	<1.0	6.4	<1.0	<10
		10/15/2013	8.3	38	98	1.9	0.8	<0.5	<0.5	6.5	<0.5	<2.0
MM01A	11.5 - 31.5	10/15/2013	1.3	9.5	130	2.3	<1.0	<1.0	2.6	<1.0	<1.0	<4.0
MM07A	10 - 27	10/11/2011	7.9	59	340	3	7.2	2.0	4.1	<1.5	<1.5	<1.5
		10/11/2012	9.9	72	410	3.9	8.0	<2.5	4.1	<2.5	<2.5	<25
		10/16/2013	9.9	71	370	3.8	8.2	<2.5	4.0	<2.5	<2.5	<10
MM17A	8.5 - 18.5	3/15/2011	23	2.8	72	0.68	2.3	<0.5	<0.5	<0.5	<0.5	NA
		8/15/2012	66	100	100	2.2	13	0.9	2.3	1.0	<0.5	NA
		2/12/2013	4.0	4.4	42	0.56	8.3	<0.5	<0.5	<0.5	<0.5	NA
		10/17/2013	34	120	75	1.8	2.2	<1.0	2.5	1.8	<1.0	<4.0
MM31A	7 - 17	10/12/2011	9.7	190	100	1.5	1.4	1.5	2.8	3.8	1.1	3.7
		10/9/2012	14	220	86	2.8	<0.5	1.8	2.8	4.7	1.2	<17
		10/17/2013	7.7	210	100	2.0	<1.7	<1.7	2.7	3.1	<1.7	<6.7
MM33A	6.5 - 26.5	10/11/2011	<0.5	2.6	22	1.2	1.4	<0.5	0.73	<0.5	<0.5	2.3
		10/9/2012	<0.5	3.4	28	<0.5	1.3	<0.5	0.7	<0.5	<0.5	5.1
		10/17/2013	<0.5	2.7	32	<0.5	1.4	<0.5	0.8	<0.5	<0.5	3.5
MM34A	7 - 27	10/11/2011	<0.5	16	26	<0.5	0.7	<0.5	0.9	<0.5	<0.5	<0.5
		10/10/2012	1.1	44	95	1.6	2.0	<1.0	3.5	<1.0	<1.0	<10
		10/15/2013	1.4	60	92	1.7	2.3	1.0	4	<0.5	<0.5	<2.0
MM37A	14 - 34	10/11/2011	1.0	220	72	1.6	<0.5	1.2	3.9	<0.5	1.1	2.8
		10/9/2012	<1.3	210	65	2.7	<1.3	<1.3	3.9	<1.3	<1.3	<13
		10/17/2013	<1.3	220	65	2.3	<1.3	<1.3	2.9	<1.3	<1.3	<5.0
MM40A	7.5 - 22.5	10/11/2011	<0.5	1.5	14	<0.5	2.4	1.1	0.51	<0.5	<0.5	<0.5
		10/9/2012	<0.5	21	61	0.9	6.7	6.3	2.6	<0.5	<0.5	6.2
		10/15/2013	<0.5	19	89	1.2	2.5	8.6	2	<0.5	<0.5	4.7
MW18AR	14.2 - 19.0	10/11/2011	19	150	99	7.8	<0.5	<0.5	2.7	22	<0.5	0.83
		10/9/2012	16	130	85	2.9	<1.3	<1.3	2.7	20	<1.3	<13
		10/16/2013	17	130	90	2.3	<1.0	<1.0	2	17	<1.0	<4.0
Maximum Detected Concentration			66	250	410	7.8	13	8.6	9.2	22	9.6	25
Water Board Commercial ESL ⁵			640	1,300	26,000	120,000	18	130,000	NA	1,600	NA	NA
U.S. EPA VISL ⁶			65	7.4	NA	1,600	2.5	820	33	11,000	31,000	6,100

Notes

- Groundwater samples were collected by Field Solutions, Inc., of San Jose, California, and analyzed by Curtis & Tompkins, Ltd., of Berkeley, California, for the USEPA Method 8010 list
- Results in **bold** indicate the constituent was detected in the sample above the laboratory reporting limit.
- "<" indicates constituent not detected above the laboratory reporting limit shown.
- NA = not available
- Groundwater Environmental Screening Levels (ESLs) for the evaluation of potential vapor intrusion concerns, commercial/industrial land use, fine-coarse mix (Table E-1, Water Board, 2013b)
- Groundwater Vapor Intrusion Screening Levels (VISLs) for commercial scenario, (U.S. EPA, 2013c).

Abbreviations

PCE = tetrachloroethene	1,1-DCE = 1,1-dichloroethene
TCE = trichloroethene	1,1-DCA = 1,1-dichloroethane
cDCE = cis-1,2-dichloroethene	1,2-DCB = 1,2-dichlorobenzene
tDCE = trans-1,2-dichloroethene	1,1,1-TCA = 1,1,1-trichloroethane
VC = vinyl chloride	Freon 113 = 1,1,2-trichloro-1,2,2-trifluoroethane

TABLE II**SUMMARY OF OUTSIDE AIR TEMPERATURES DURING INDOOR AIR SAMPLING EVENTS¹**

1160 KERN AVENUE
SUNNYVALE, CALIFORNIA

Date	Start of Sampling		End of Sampling		Maximum	
	Time	Temperature (° F) ²	Time	Temperature (° F)	Time	Temperature (° F)
2011 August 21	8:00 AM	60.1	6:18 PM	68.0	1:56 PM	70.0
2011 December 22	7:58 AM	45.0	5:50 PM	55.0	1:56 PM	63.0
2012 July 8	8:03 AM	53.1	6:18 PM	71.1	2:56 PM and 3:56 PM	78.1
2013 September 27	7:22 AM	57.9	3:50 PM	68.0	2:56 PM	68.0
2014 February 10	7:37 AM	55.4	3:43 PM	60.8	3:31 PM	60.8

Notes

1. Outside air temperature measurements collected at the nearby Moffett Field Meteorological Station, located in Moffett Field, Mountain View, California; complete meteorological summaries for each indoor air sampling event are presented in Appendix A.
2. Temperature is presented in units of degrees Fahrenheit.

TABLE III
HISTORICAL ANALYTICAL RESULTS FOR INDOOR AIR SAMPLES
1160 KERN AVENUE
SUNNYVALE, CALIFORNIA

Results reported in micrograms per cubic meter (µg/m³)

Sample ID	Sample Type	Location	Date Collected	Chloro-benzene	1,2-DCB	1,1-DCA	cis-1,2-DCE	trans-1,2-DCE	1,1-DCE	PCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride
August 2011														
AMB-1	Ambient ¹	Parking lot	8/21/2011	<0.092 ²	<0.30	<0.020	<0.055	<0.055	<0.040	<0.14	<0.11	<0.027	0.79 ³	<0.013
AMB-2	Ambient	Roof	8/21/2011	<0.092	<0.30	<0.020	<0.055	<0.055	<0.040	<0.14	<0.11	0.053	0.74	<0.013
IA-1	Breathing Zone ⁴	Warehouse/storage	8/21/2011	<0.092	<0.30	<0.020	<0.055	<0.055	<0.040	1.6	<0.11	1.2	0.75	<0.013
IA-10	Blind Field Duplicate ⁵		8/21/2011	<0.092	<0.30	<0.020	<0.056	<0.056	<0.040	1.4	<0.11	1.2	0.66	<0.013
IA-2	Preferential Pathway ⁶	Womens restroom in warehouse	8/21/2011	<0.092	<0.30	0.021	0.25	<0.055	<0.040	14 ⁷	0.16	27	1.4	0.017
IA-3	Breathing Zone	Conference room	8/21/2011	<0.092	<0.30	<0.020	<0.055	<0.055	<0.040	2.1	<0.11	1.6	0.83	<0.013
IA-4	Breathing Zone	Lobby	8/21/2011	<0.092	<0.30	<0.020	<0.055	<0.055	<0.040	1.0	<0.11	0.84	0.71	<0.013
IA-5	Breathing Zone	Volunteer room	8/21/2011	<0.092	<0.30	<0.020	<0.055	<0.055	<0.040	2.4	<0.11	1.8	0.88	<0.013
IA-6	Breathing Zone	Warehouse/storage	8/21/2011	<0.092	<0.30	<0.020	<0.056	<0.056	<0.040	3.0	<0.11	1.7	0.62	<0.013
December 2011														
AMB-3	Ambient	Parking lot	12/22/2011	<0.092	<0.30	<0.020	<0.055	<0.055	<0.040	<0.14	<0.11	0.040	0.70 J ⁸	<0.013
IA-2R	Preferential Pathway (and Blind Field Duplicates)	Womens restroom in warehouse	12/22/2011	<0.092	<0.30	<0.020	<0.055	<0.055	<0.040	3.7	<0.11	6.9	1.1 J	<0.013
IA-20R			12/22/2011	<0.092	<0.30	<0.020	<0.055	<0.055	<0.040	4.2	<0.11	7.6	1.5 J	<0.013
IA-7	Preferential Pathway	Mens restroom in warehouse	12/22/2011	<0.092	<0.30	<0.020	<0.056	<0.056	<0.040	1.2	<0.11	1.3	0.74 J	<0.013
IA-8	Preferential Pathway	Mens restroom off lobby	12/22/2011	<0.092	<0.30	<0.020	<0.056	<0.056	<0.040	1.4	<0.11	1.4	0.76 J	<0.013
IA-9	Preferential Pathway	Womens restroom off lobby	12/22/2011	1.0	0.81	<0.020	<0.055	<0.055	<0.040	1.5	<0.11	2.0	0.79 J	<0.013
July 2012														
AMB-4	Ambient	Parking lot	7/8/2012	<0.092	<0.30	<0.020	<0.056	<0.056	<0.040	0.52 J	<0.11	<0.027	0.70	<0.013
IA-2B ⁹	Preferential Pathway (and Blind Field Duplicates)	Womens restroom in warehouse	7/8/2012	<0.092	<0.30	<0.020	<0.056	<0.056	<0.040	6.0 J	0.14	14	0.88	<0.013
IA-20B			7/8/2012	<0.092	<0.30	<0.020	<0.056	<0.056	<0.040	7.8 J	0.15	15	1.0	<0.013
IA-7B	Preferential Pathway	Mens restroom in warehouse	7/8/2012	<0.092	<0.30	<0.020	<0.056	<0.056	<0.040	2.5 J	0.11	2.2	0.75	<0.013
IA-8B	Preferential Pathway	Mens restroom off lobby	7/8/2012	<0.092	<0.30	<0.020	<0.056	<0.056	<0.040	2.7 J	<0.11	2.1	0.74	<0.013
IA-9B	Preferential Pathway	Womens restroom off lobby	7/8/2012	<0.092	<0.30	<0.020	0.15	<0.055	<0.040	3.2 J	<0.11	4.2	0.74	<0.013
September 2013														
AMBIENT-09272013	Ambient	Roof	9/27/2013	<4.5	<5.8	<3.9	<3.8	<3.8	<3.8	<6.6	<5.3	<1.0	<7.4	<0.50
IA-2	Breathing Zone	Womens restroom in warehouse	9/27/2013	<4.9	<6.5	<4.4	<4.3	<4.3	<4.3	<7.3	<5.9	5.2	<8.2	<0.55
IA-5	Breathing Zone	Volunteer room	9/27/2013	<4.7	<6.2	<4.2	<4.1	<4.1	<4.1	<7.0	<5.6	<1.1	<7.9	<0.53
IA-6	Breathing Zone	Warehouse/storage	9/27/2013	<4.3	<5.6	<3.8	<3.7	<3.7	<3.7	<6.3	<5.1	<1.0	<7.1	<0.48
IA-9	Breathing Zone	Womens restroom off lobby	9/27/2013	<7.8	<10	<6.8	<6.7	<6.7	<6.7	<11	<9.2	<1.8	<13	<0.86
IA-9B			9/27/2013	<7.8	<10	<6.9	<6.7	<6.7	<6.7	<12	<9.3	<1.8	<13	<0.87
February 2014														
AMBIENT-02102014	Ambient	Parking lot	2/10/2014	0.042 J	0.074 J	<0.081	<0.079	<0.079	<0.079	<0.14	0.063 J	0.081 J	0.96	<0.051
IA-2	Breathing Zone	Womens restroom in warehouse	2/10/2014	0.040 J	<0.30	<0.081	<0.079	<0.079	<0.079	1.8	0.12	3.5	0.78	<0.051
IA-02B			2/10/2014	0.033 J	<0.30	<0.081	<0.079	<0.079	<0.079	1.7	0.13	3.3	0.78	<0.051
IA-5	Breathing Zone	Volunteer room	2/10/2014	0.038 J	<0.30	<0.081	<0.079	<0.079	<0.079	0.92	0.063 J	0.97	0.62	<0.051
IA-6	Breathing Zone	Warehouse/storage	2/10/2014	0.034 J	<0.30	<0.081	<0.079	<0.079	<0.079	0.98	0.068 J	0.98	0.62	<0.051
IA-7	Breathing Zone	Mens restroom in warehouse	2/10/2014	0.030 J	<0.30	<0.081	<0.079	<0.079	<0.079	0.72	0.085 J	0.91	0.50	<0.051
U.S. EPA Region 9 Regional Screening Level (RSL) for Industrial Air				220	880	7.7	31 ¹⁰	260	310 ¹⁰	2.08 ¹⁰	4,400 ¹⁰	3.0 ¹¹	130,000	0.16 ¹⁰

Notes

1. Ambient samples were collected outdoors, in an approximate upwind direction of the building and/or near the intake of the building's passive air intake.
2. "<" indicates that the analyte was not detected at or above the laboratory reporting limit shown.
3. Results shown in **bold** indicate that the analyte was detected in the sample at or above the laboratory reporting limit
4. Breathing zone samples were collected indoors from the approximate height of a seated worker.
5. Each duplicate sample was collected simultaneously the associated primary sample, using a T-splitter.
6. Preferential pathway samples were collected indoors, as close as possible to a potential source. Preferential pathway sample results are not necsesarily representative of employee exposure.
7. Shaded cells indicate that the analyte was detected in the sample above the RSL.
8. "J" indicates that the analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
9. Sample IA-2B is considered a "grab" sample; the canister had filled completely by the time field personnel arrived to close it.
10. Alternative air screening level currently recommended in lieu of the November 2012 RSLs (DTSC, 2012, HERO HHRA Note 3).
- 11.The U.S. EPA updated the RSL for TCE in November 2011; the RSL for TCE used in prior reports for this site is 6.1 µg/m³.

Abbreviations

1,1,1-TCA = 1,1,1-trichloroethane
1,1-DCA = 1,1-dichloroethane
1,1-DCE = 1,1-dichloroethene
1,2-DCB = 1,2-dichlorobenzene

cis-1,2-DCE = cis-1,2-dichloroethene
Freon 113 = 1,1,2-trichloro-1,2,2-trifluoromethane
PCE = tetrachloroethene
RSL = U.S. EPA Region 9 Regional Screening Level

TCE = trichloroethene
trans-1,2-DCE = trans-1,2-dichloroethene
U.S. EPA = U.S. Environmental Protection Agency

TABLE IV
RISK ASSESSMENT CALCULATIONS FOR INDOOR AIR SAMPLES COLLECTED ON 10 FEBRUARY 2014
 1160 KERN AVENUE
 SUNNYVALE, CALIFORNIA

Chemical	Maximum Indoor Air Concentration (µg/m ³)	Reference Concentration (RfC) (µg/m ³)	Reference	Hazard Quotient	Unit Risk Factor (URF) (µg/m ³) ⁻¹	Reference	Theoretical Lifetime Excess Cancer Risk
Chlorobenzene	0.038	1000	OEHHA REL	8.7E-06	NA	--	--
Tetrachloroethylene	0.98	35	OEHHA REL	6.4E-03	0.0000059	OEHHA	4.7E-07
1,1,1-Trichloroethane	0.068	1000	OEHHA	1.6E-05	NA	--	--
Trichloroethylene	0.98	2	OEHHA	1.1E-01	0.0000041	IRIS	3.3E-07
Freon 113	0.62	30,000	HEAST	4.7E-06	NA	--	--
Total				0.1			8E-07

ECnc = Caa x ET x EF x ED / ATnc-inh	Hazard Quotient =	ECnc RfC
ECc = Caa x ET x EF x ED / ATc-inh	Excess Cancer Risk =	ECc x URF

Parameter	Symbol	Values	Units
Exposure Time	ET	8	hr/d
Exposure Frequency	EF	250	d/yr
Exposure Duration	ED	25	yr
Averaging Time-Non-cancer	ATnc-inh	219,000	hours
Averaging Time-Cancer	ATc-inh	613,200	hours

Abbreviations

-- = Not applicable
 µg/m³ = micrograms per cubic meter
 Freon 113 = 1,1,2-trichloro-1,2,2-trifluoromethane
 NA = Not available

References

IRIS = U.S. EPA, 2014, Integrated Risk Information System (IRIS) Data Base
 HEAST = U.S. EPA, 1997, Health Effects Assessment Summary Tables (HEAST)
 OEHHA = Cal-EPA, Office of Environmental Health Hazard Assessment, 2014, Toxicity Criteria Database.
 OEHHA REL = OEHHA, 2014, Chronic Reference Exposure Levels, January

TABLE V

RISK ASSESSMENT CALCULATIONS FOR INDOOR AIR SAMPLES COLLECTED ON 10 FEBRUARY 2014

HYPOTHETICAL WOMEN'S WAREHOUSE RESTROOM EXPOSURE SCENARIO

1160 KERN AVENUE

SUNNYVALE, CALIFORNIA

Chemical	Indoor Air Concentration			Reference Concentration (RfC) ($\mu\text{g}/\text{m}^3$)	Reference	Hazard Quotient	Unit Risk Factor (URF) ($\mu\text{g}/\text{m}^3$) ⁻¹	Reference	Theoretical Lifetime Excess Cancer Risk
	Women's Warehouse Bathroom ($\mu\text{g}/\text{m}^3$)	Maximum Detected Concentration-- Occupied Areas ($\mu\text{g}/\text{m}^3$)	Weighted-Average Indoor Air Concentration ¹ ($\mu\text{g}/\text{m}^3$)						
Chlorobenzene	0.04	0.038	0.038	1000	OEHHA REL	8.7E-06	NA	--	--
Tetrachloroethylene	1.8	0.98	1.1	35	OEHHA REL	7.1E-03	0.0000059	OEHHA	5.2E-07
1,1,1-Trichloroethane	0.13	0.068	0.076	1000	OEHHA	1.7E-05	NA	--	--
Trichloroethylene	3.5	0.98	1.3	2	OEHHA	1.5E-01	0.0000041	IRIS	4.3E-07
Freon 113	0.78	0.62	0.64	30,000	HEAST	4.9E-06	NA	--	--
Total						0.2			1E-06

$$EC_{nc} = C_{aa} \times ET \times EF \times ED / AT_{nc-inh}$$

$$\text{Hazard Quotient} = \frac{EC_{nc}}{RfC}$$

$$EC_c = C_{aa} \times ET \times EF \times ED / AT_{c-inh}$$

$$\text{Excess Cancer Risk} = EC_c \times URF$$

Parameter	Symbol	Values	Units
Exposure Time	ET	8	hr/d
Exposure Frequency	EF	250	d/yr
Exposure Duration	ED	25	yr
Averaging Time-Non-cancer	AT _{nc-inh}	219,000	hours
Averaging Time-Cancer	AT _{c-inh}	613,200	hours

Note

1. An weighted-average indoor air exposure point concentration was calculated by assuming a hypothetical exposure scenario of one-hour per day in the women's warehouse restroom and seven hours per day in the occupied areas of the building (i.e., volunteer and warehouse/storage rooms).

Abbreviations

-- = Not applicable

 $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

Freon 113 = 1,1,2-trichloro-1,2,2-trifluoromethane

NA = Not available

References

IRIS = U.S. EPA, 2014, Integrated Risk Information System (IRIS) Data Base

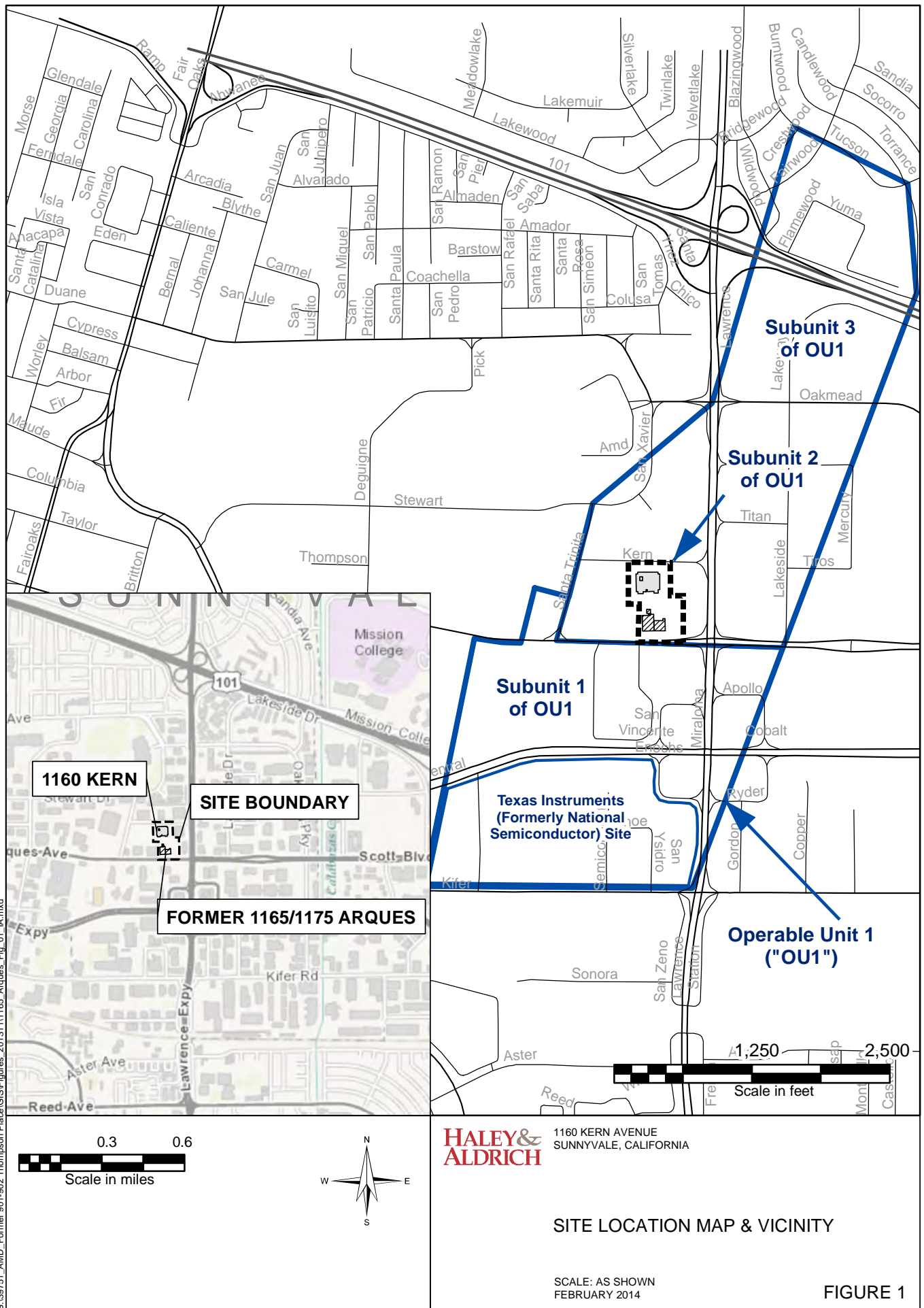
HEAST = U.S. EPA, 1997, Health Effects Assessment Summary Tables (HEAST)

OEHHA = Cal-EPA, Office of Environmental Health Hazard Assessment, 2014, Toxicity Criteria Database.

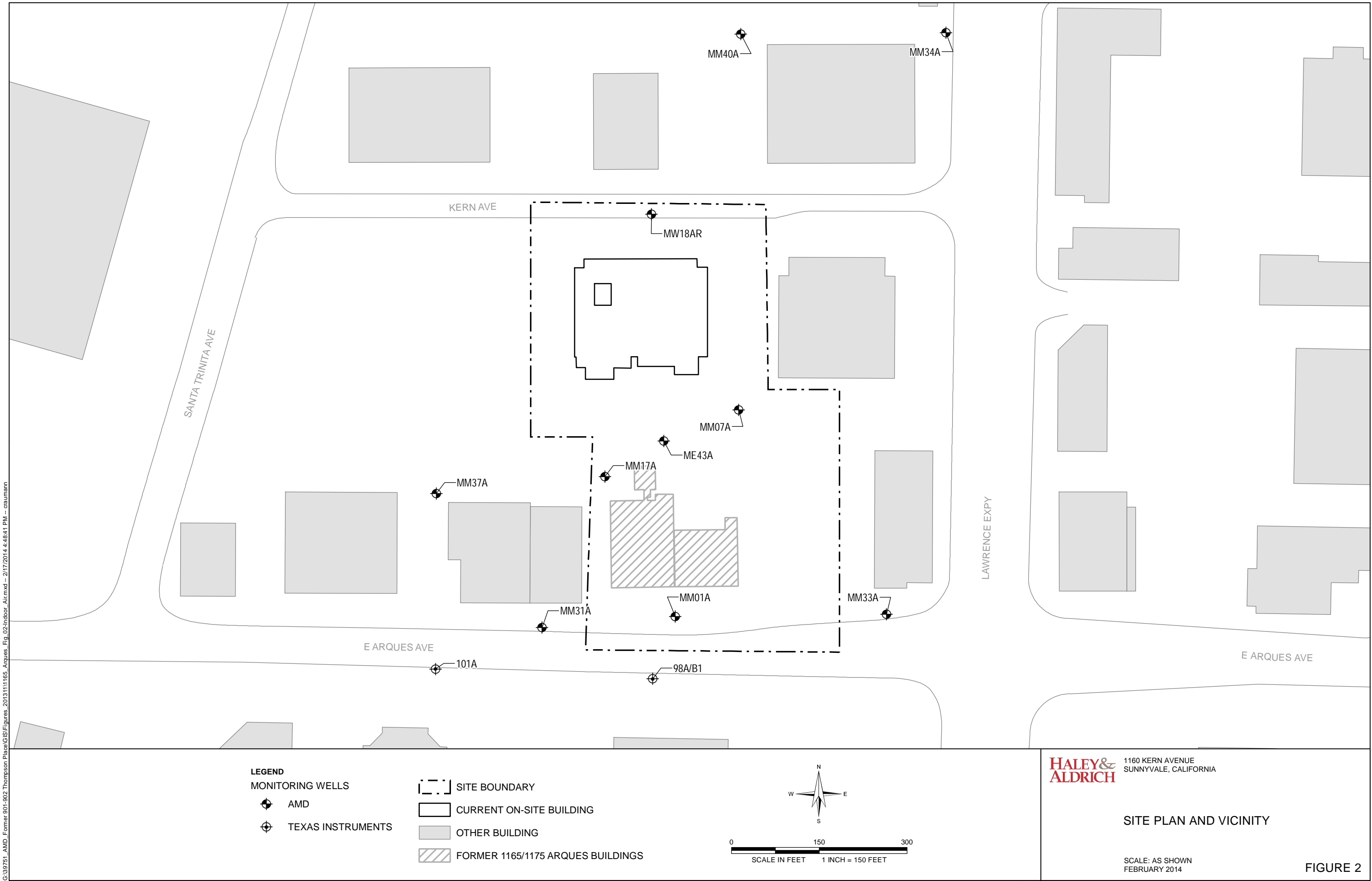
OEHHA REL = OEHHA, 2014, Chronic Reference Exposure Levels, January

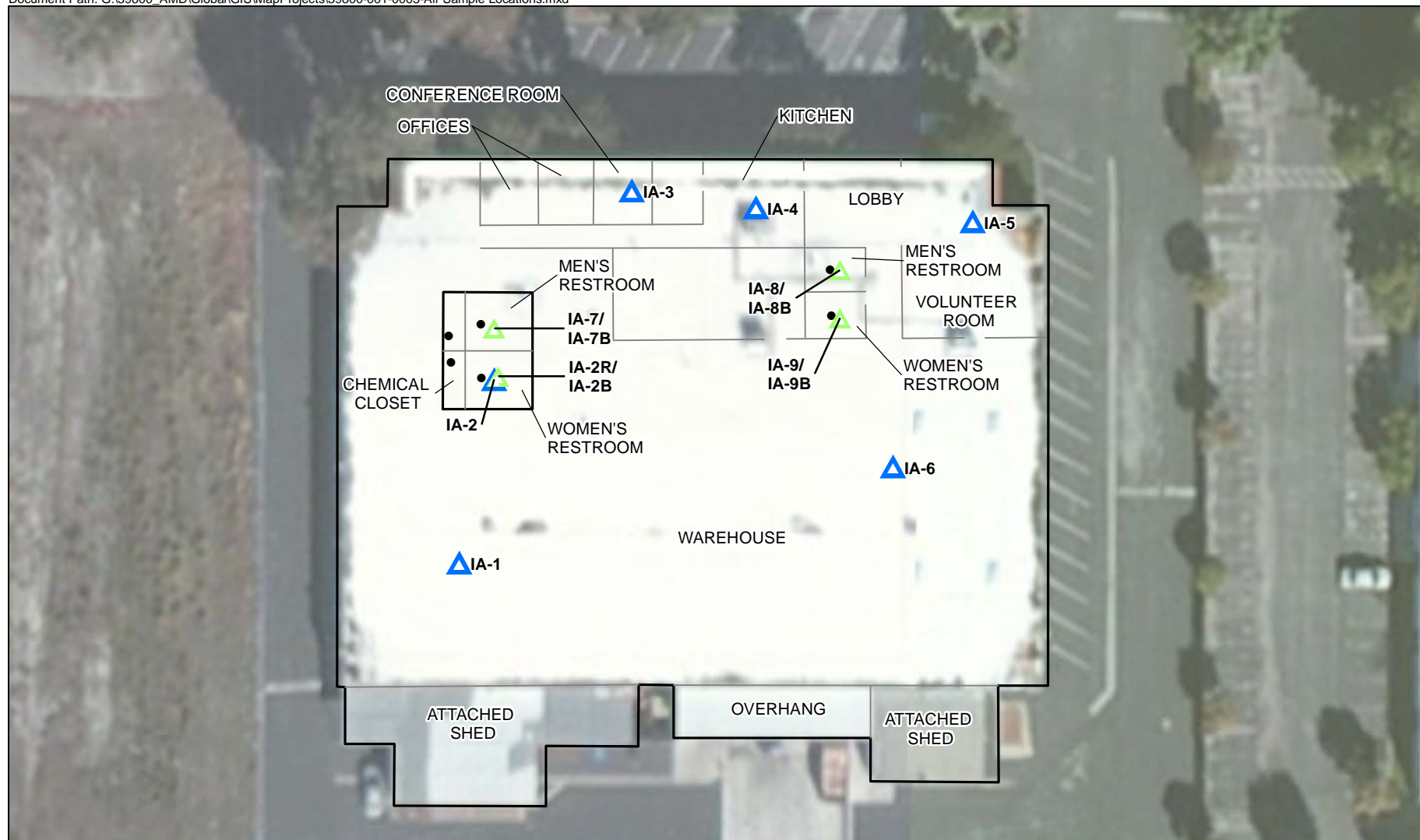
FIGURES

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G:\39751_AMD_Fomer 901-902 Thompson Place\GIS\Figures_20131111\165_Arques_Fig 02\Indoor_Air.mxd - 2/17/2014 4:48:41 PM - craumann



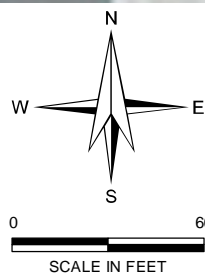


LEGEND

- ▲ APPROXIMATE LOCATION OF INDOOR AIR SAMPLE COLLECTED ON DECEMBER 22, 2011 AND JULY 8, 2012
- ▲ APPROXIMATE LOCATION OF INDOOR AIR SAMPLE COLLECTED ON AUGUST 21, 2011
- APPROXIMATE LOCATION OF FLOOR DRAIN

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND FROM ESRI ONLINE SERVICE.



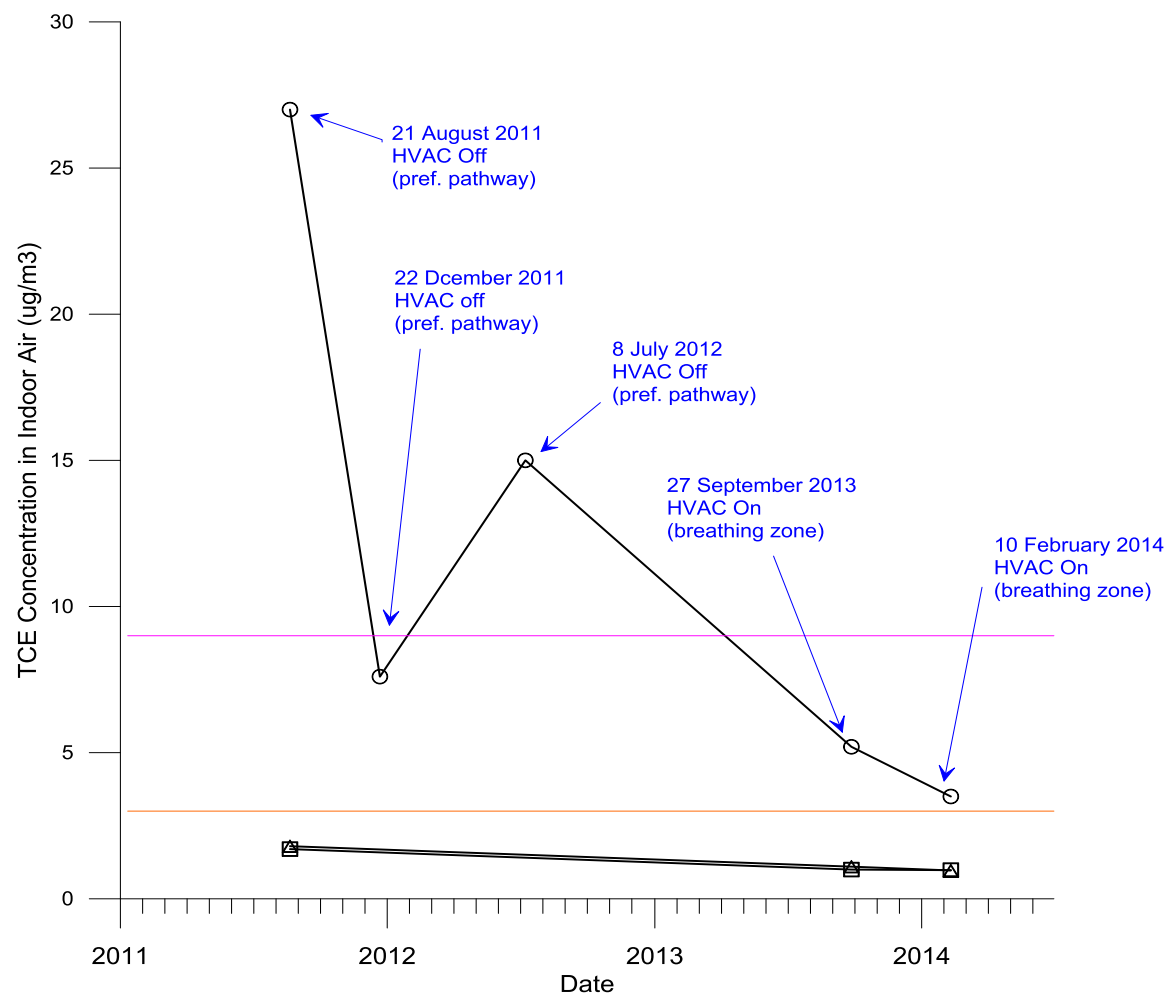
HALEY & ALDRICH

1160 KERN AVENUE
SUNNYVALE, CALIFORNIA

INDOOR AIR SAMPLE LOCATIONS

SCALE: AS SHOWN
FEBRUARY 2014

FIGURE 3



Explanation	
○	Women's Warehouse Restroom
△	Volunteer Room
□	warehouse Storage Room
— (pink)	USEPA Long Term RSL (3 µg/m ³)
— (orange)	USEPA Short-Term Action Level (9 µg/m ³)

ABBREVIATIONS

HVAC = heating, ventilation, and air conditioning

TCE = trichloroethene

µg/m³ = micrograms per cubic meter

HALEY & ALDRICH

1160 KERN AVENUE
SUNNYVALE, CALIFORNIA

TCE CONCENTRATIONS IN INDOOR AIR SAMPLES

FEBRUARY 2014

FIGURE 4

APPENDIX A

Meteorological Summaries For Indoor Air Sampling Events

Weather History for Moffett NAS, CA

Sunday, August 21, 2011

Sunday, August 21, 2011

◀ Previous Day

August ▼

21 ▼

2011 ▼

View

Next Day ▶

Daily

Weekly

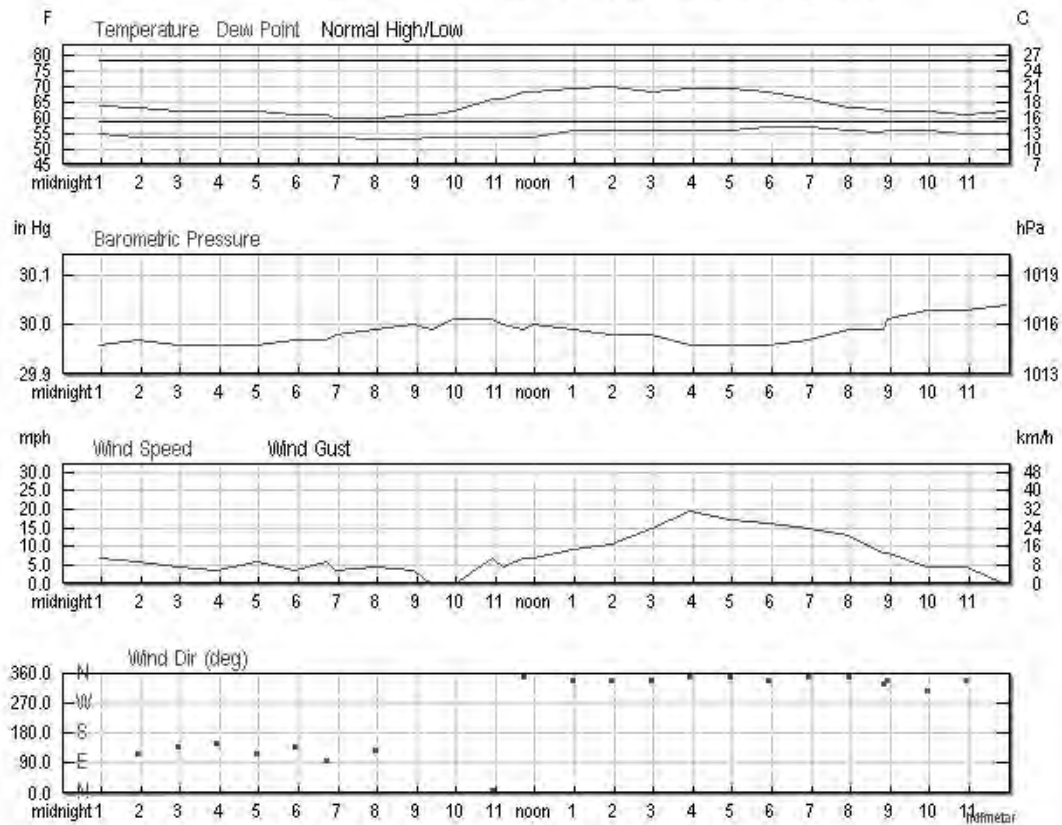
Monthly

Custom


	Actual	Average	Record
Temperature			
Mean Temperature	66 °F	66 °F	
Max Temperature	71 °F	78 °F	87 °F (1993)
Min Temperature	60 °F	59 °F	51 °F (1954)
Degree Days			
Heating Degree Days	0		
Month to date heating degree days	1		
Since 1 June heating degree days	60		
Since 1 July heating degree days	10		
Cooling Degree Days	1		
Month to date cooling degree days	33		
Year to date cooling degree days	195		
Since 1 June cooling degree days	175		
Growing Degree Days	15 (Base 50)		
Moisture			
Dew Point	55 °F		
Average Humidity	72		
Maximum Humidity	84		
Minimum Humidity	59		
Precipitation			
Precipitation	0.00 in	0.01 in	0.01 in (1988)
Month to date precipitation	0.00	0.01	
Year to date precipitation	9.50	9.66	
Since 1 July precipitation	0.00	0.03	
Sea Level Pressure			
Sea Level Pressure	29.96 in		
Wind			
Wind Speed	8 mph (NNE)		
Max Wind Speed	20 mph		
Max Gust Speed	24 mph		
Visibility	10 miles		
Events			

T = Trace of Precipitation, MM = Missing Value

Source: NWS Daily Summary



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Hourly Weather History & Observations

Time (PDT)	Temp.	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
12:58 AM	64.0 °F	55.0 °F	73%	29.96 in	10.0 mi	ESE	6.9 mph	-	N/A		Overcast
1:58 AM	63.0 °F	54.0 °F	72%	29.97 in	10.0 mi	ESE	5.8 mph	-	N/A		Overcast
2:58 AM	62.1 °F	54.0 °F	75%	29.96 in	10.0 mi	SE	4.8 mph	-	N/A		Overcast
3:58 AM	62.1 °F	54.0 °F	75%	29.96 in	10.0 mi	SSE	3.5 mph	-	N/A		Overcast
4:58 AM	62.1 °F	54.0 °F	75%	29.96 in	10.0 mi	ESE	5.8 mph	-	N/A		Overcast
5:58 AM	61.0 °F	54.0 °F	76%	29.97 in	10.0 mi	SE	3.5 mph	-	N/A		Overcast
6:43 AM	60.8 °F	53.6 °F	77%	29.97 in	10.0 mi	East	5.8 mph	-	N/A		Overcast
6:58 AM	60.1 °F	54.0 °F	80%	29.98 in	10.0 mi	Variable	3.5 mph	-	N/A		Overcast
7:58 AM	60.1 °F	53.1 °F	78%	29.99 in	10.0 mi	SE	4.8 mph	-	N/A		Overcast
8:58 AM	61.0 °F	53.1 °F	75%	30.00 in	10.0 mi	Variable	3.5 mph	-	N/A		Overcast
9:23 AM	60.8 °F	53.6 °F	77%	29.99 in	10.0 mi	Calm	Calm	-	N/A		Overcast
9:58 AM	62.1 °F	54.0 °F	75%	30.01 in	10.0 mi	Calm	Calm	-	N/A		Overcast
10:58 AM	66.0 °F	54.0 °F	85%	30.01 in	10.0 mi	North	6.9 mph	-	N/A		Mostly Cloudy

1/30/2014

Weather History for Moffett NAS, CA | Weather Underground

11:11 AM	66.2 °F	53.6 °F	64%	30.00 in	10.0 mi	Variable	4.6 mph	-	N/A	Partly Cloudy
11:42 AM	68.0 °F	53.6 °F	60%	29.99 in	10.0 mi	North	6.9 mph	-	N/A	Mostly Cloudy
11:56 AM	68.0 °F	54.0 °F	61%	30.00 in	10.0 mi	Variable	6.9 mph	-	N/A	Scattered Clouds
12:56 PM	69.1 °F	55.9 °F	63%	29.99 in	10.0 mi	NNW	9.2 mph	-	N/A	Clear
1:56 PM	70.0 °F	55.9 °F	61%	29.98 in	10.0 mi	NNW	10.4 mph	-	N/A	Clear
2:56 PM	68.0 °F	55.9 °F	65%	29.98 in	10.0 mi	NNW	15.0 mph	-	N/A	Clear
3:56 PM	69.1 °F	55.9 °F	63%	29.96 in	10.0 mi	North	19.6 mph	-	N/A	Clear
4:56 PM	69.1 °F	55.9 °F	63%	29.96 in	10.0 mi	North	17.3 mph	21.9 mph	N/A	Clear
5:56 PM	68.0 °F	57.0 °F	68%	29.96 in	10.0 mi	NNW	16.1 mph	-	N/A	Clear
6:56 PM	66.0 °F	57.0 °F	73%	29.97 in	10.0 mi	North	15.0 mph	-	N/A	Clear
7:56 PM	63.0 °F	55.9 °F	78%	29.99 in	10.0 mi	North	12.7 mph	-	N/A	Clear
8:51 PM	62.6 °F	55.4 °F	77%	29.99 in	10.0 mi	NNW	8.1 mph	-	N/A	Mostly Cloudy
8:56 PM	62.1 °F	55.9 °F	80%	30.01 in	10.0 mi	NNW	8.1 mph	-	N/A	Mostly Cloudy
9:56 PM	62.1 °F	55.9 °F	80%	30.03 in	10.0 mi	NW	4.6 mph	-	N/A	Overcast
10:56 PM	61.0 °F	55.0 °F	81%	30.03 in	10.0 mi	NNW	4.6 mph	-	N/A	Overcast
11:56 PM	62.1 °F	55.0 °F	78%	30.04 in	10.0 mi	Calm	Calm	-	N/A	Overcast

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1/30/2014

Weather History for Moffett NAS, CA | Weather Underground

Weather History for Moffett NAS, CA

Thursday, December 22, 2011

Thursday, December 22, 2011

[« Previous Day](#)

December ▾

22 ▾

2011 ▾

[View](#)[Next Day »](#)

Daily

Weekly

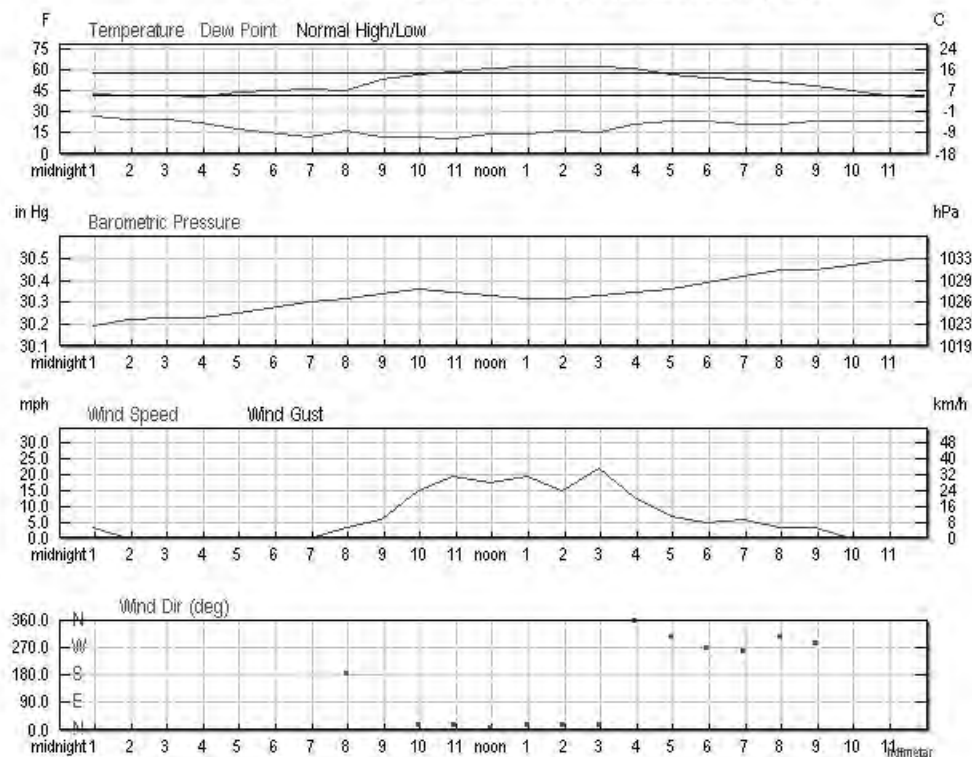
Monthly

Custom

	Actual	Average	Record
Temperature			
Mean Temperature	51 °F	50 °F	
Max Temperature	63 °F	58 °F	68 °F (1999)
Min Temperature	39 °F	42 °F	25 °F (1990)
Degree Days			
Heating Degree Days	14		
Month to date heating degree days	277		
Since 1 July heating degree days	560		
Cooling Degree Days	0		
Month to date cooling degree days	0		
Year to date cooling degree days	459		
Growing Degree Days	2 (Base 50)		
Moisture			
Dew Point	19 °F		
Average Humidity	34		
Maximum Humidity	53		
Minimum Humidity	14		
Precipitation			
Precipitation	0.09 in	0.09 in	2.23 in (1955)
Month to date precipitation	0.12	1.71	
Year to date precipitation	11.23	13.83	
Since 1 July precipitation	1.73	4.20	
Sea Level Pressure			
Sea Level Pressure	30.35 in		
Wind			
Wind Speed	7 mph (NNW)		
Max Wind Speed	25 mph		
Max Gust Speed	30 mph		
Visibility	10 miles		
Events			

T = Trace of Precipitation, MM = Missing Value

Source: NWS Daily Summary



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Hourly Weather History & Observations

Time (PST)	Temp.	Windchill	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
12:58 AM	43.0 °F	41.3 °F	27.0 °F	63%	30.19 in	10.0 mi	WSW	3.5 mph	-	N/A		Clear
1:58 AM	42.1 °F	-	24.1 °F	49%	30.22 in	10.0 mi	Calm	Calm	-	N/A		Clear
2:58 AM	42.1 °F	-	24.1 °F	49%	30.23 in	10.0 mi	Calm	Calm	-	N/A		Clear
3:58 AM	41.0 °F	-	21.0 °F	47%	30.23 in	10.0 mi	Calm	Calm	-	N/A		Clear
4:58 AM	44.1 °F	-	19.0 °F	35%	30.26 in	10.0 mi	Calm	Calm	-	N/A		Clear
5:58 AM	46.0 °F	-	12.0 °F	25%	30.30 in	10.0 mi	Calm	Calm	-	N/A		Clear
7:58 AM	46.0 °F	43.5 °F	16.0 °F	31%	30.32 in	10.0 mi	South	3.5 mph	-	N/A		Clear
8:58 AM	53.1 °F	-	12.0 °F	20%	30.34 in	10.0 mi	Variable	6.8 mph	18.4 mph	N/A		Clear
9:58 AM	57.0 °F	-	12.0 °F	17%	30.36 in	10.0 mi	NNE	15.9 mph	-	N/A		Clear
10:58 AM	59.0 °F	-	10.0 °F	15%	30.38 in	10.0 mi	NNE	19.6 mph	24.2 mph	N/A		Clear
11:58 AM	61.0 °F	-	14.0 °F	16%	30.33 in	10.0 mi	North	17.3 mph	-	N/A		Clear
12:58 PM	62.1 °F	-	14.0 °F	15%	30.32 in	10.0 mi	NNE	19.6 mph	24.2 mph	N/A		Clear
1:58 PM	63.0 °F	-	17.1 °F	17%	30.32 in	10.0 mi	NNE	16.0 mph	-	N/A		Clear
2:58 PM	62.1 °F	-	16.1 °F	16%	30.33 in	10.0 mi	NNE	21.9 mph	-	N/A		Clear
3:58 PM	61.0 °F	-	21.0 °F	21%	30.35 in	10.0 mi	North	12.7 mph	-	N/A		Clear
4:58 PM	57.0 °F	-	23.0 °F	27%	30.36 in	10.0 mi	NW	6.8 mph	-	N/A		Clear

1/30/2014

Weather History for Moffett NAS, CA | Weather Underground

5:56 PM	55.0 °F	-	23.0 °F	29%	30.39 in	10.0 mi	West	4.6 mph	-	N/A		Clear
6:56 PM	53.1 °F	-	21.0 °F	29%	30.42 in	10.0 mi	West	5.8 mph	-	N/A		Clear
7:56 PM	51.1 °F	-	21.0 °F	31%	30.45 in	10.0 mi	NW	3.5 mph	-	N/A		Clear
8:56 PM	48.9 °F	-	23.0 °F	36%	30.45 in	10.0 mi	WNW	3.5 mph	-	N/A		Clear
9:56 PM	45.0 °F	-	23.0 °F	42%	30.47 in	10.0 mi	Calm	Calm	-	N/A		Clear
10:56 PM	42.1 °F	-	23.0 °F	47%	30.49 in	10.0 mi	Calm	Calm	-	N/A		Clear
11:56 PM	41.0 °F	-	23.0 °F	49%	30.50 in	10.0 mi	Calm	Calm	-	N/A		Clear

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Weather History for Moffett NAS, CA

Sunday, July 8, 2012

Sunday, July 8, 2012

◀ Previous Day

July ▼

8 ▼

2012 ▼

View

Next Day ▶

Daily

Weekly

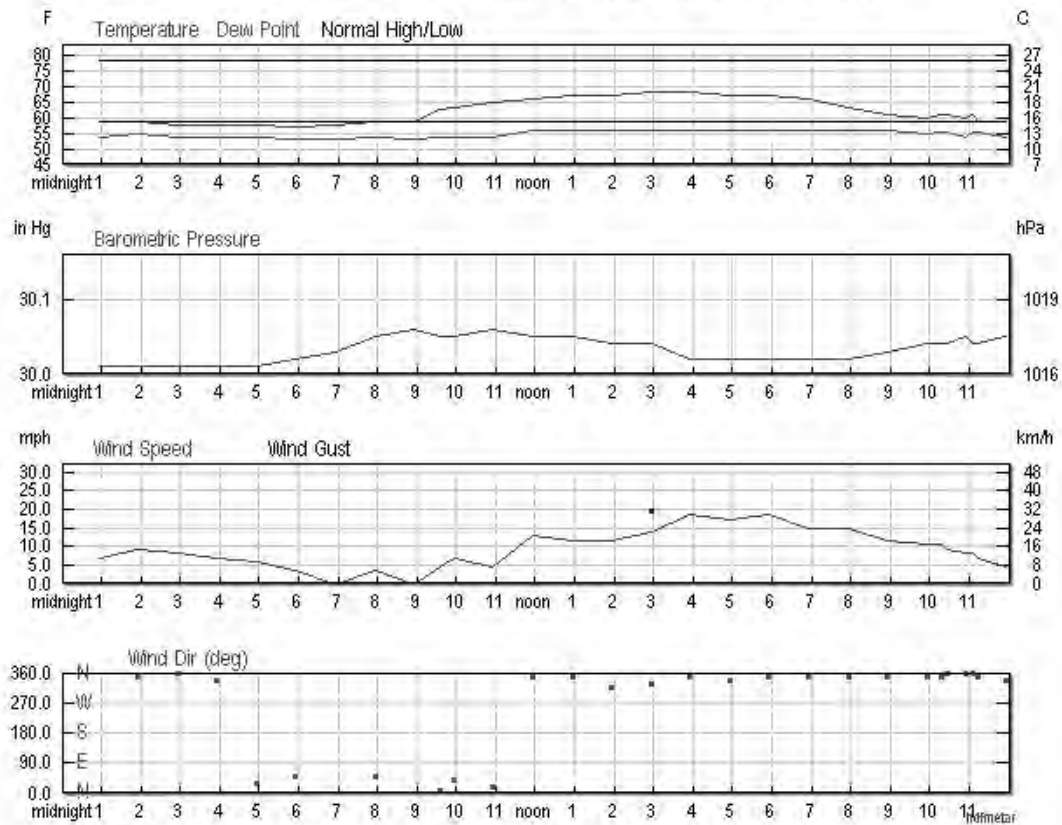
Monthly

Custom

	Actual	Average	Record
Temperature			
Mean Temperature	63 °F	66 °F	
Max Temperature	69 °F	78 °F	96 °F (1985)
Min Temperature	57 °F	59 °F	47 °F (1948)
Degree Days			
Heating Degree Days	2		
Month to date heating degree days	5		
Since 1 June heating degree days	46		
Since 1 July heating degree days	5		
Cooling Degree Days	0		
Month to date cooling degree days	10		
Year to date cooling degree days	108		
Since 1 June cooling degree days	65		
Growing Degree Days	12 (Base 50)		
Moisture			
Dew Point	55 °F		
Average Humidity	75		
Maximum Humidity	87		
Minimum Humidity	63		
Precipitation			
Precipitation	0.00 in	0.00 in	0.02 in (1974)
Month to date precipitation	0.00	0.01	
Year to date precipitation	5.51	9.64	
Since 1 July precipitation	0.00	0.01	
Sea Level Pressure			
Sea Level Pressure	30.03 in		
Wind			
Wind Speed	9 mph (North)		
Max Wind Speed	20 mph		
Max Gust Speed	24 mph		
Visibility	10 miles		
Events			

T = Trace of Precipitation, MM = Missing Value

Source: NWS Daily Summary



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Hourly Weather History & Observations

Time (PDT)	Temp.	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
12:58 AM	59.0 °F	54.0 °F	83%	30.01 in	10.0 mi	North	6.9 mph	-	N/A		Clear
1:58 AM	59.0 °F	55.0 °F	87%	30.01 in	10.0 mi	North	9.2 mph	-	N/A		Clear
2:58 AM	57.9 °F	54.0 °F	87%	30.01 in	10.0 mi	North	8.1 mph	-	N/A		Mostly Cloudy
3:58 AM	57.9 °F	54.0 °F	87%	30.01 in	10.0 mi	NNW	6.9 mph	-	N/A		Overcast
4:58 AM	57.9 °F	54.0 °F	87%	30.01 in	10.0 mi	NNE	5.8 mph	-	N/A		Overcast
5:58 AM	57.9 °F	53.1 °F	87%	30.02 in	10.0 mi	NE	3.5 mph	-	N/A		Overcast
6:58 AM	57.9 °F	53.1 °F	84%	30.03 in	10.0 mi	Calm	Calm	-	N/A		Overcast
7:58 AM	59.0 °F	54.0 °F	83%	30.05 in	10.0 mi	NE	3.5 mph	-	N/A		Overcast
8:58 AM	59.0 °F	53.1 °F	81%	30.06 in	10.0 mi	Calm	Calm	-	N/A		Overcast
9:34 AM	62.6 °F	53.8 °F	72%	30.05 in	10.0 mi	North	4.6 mph	-	N/A		Scattered Clouds
9:58 AM	63.0 °F	54.0 °F	72%	30.05 in	10.0 mi	NE	6.9 mph	-	N/A		Clear
10:58 AM	64.9 °F	54.0 °F	68%	30.06 in	10.0 mi	NNE	4.6 mph	-	N/A		Clear

1/30/2014

Weather History for Moffett NAS, CA | Weather Underground

11:56 AM	66.0 °F	55.9 °F	70%	30.05 in	10.0 mi	North	12.7 mph	-	N/A		Clear
12:56 PM	66.9 °F	55.9 °F	68%	30.05 in	10.0 mi	North	11.5 mph	-	N/A		Clear
1:56 PM	66.9 °F	55.9 °F	68%	30.04 in	10.0 mi	NW	11.5 mph	17.3 mph	N/A		Clear
2:56 PM	68.0 °F	55.9 °F	65%	30.04 in	10.0 mi	NNW	13.8 mph	19.6 mph	N/A		Clear
3:56 PM	68.0 °F	55.9 °F	65%	30.02 in	10.0 mi	North	18.4 mph	-	N/A		Clear
4:56 PM	66.9 °F	55.9 °F	68%	30.02 in	10.0 mi	NNW	17.3 mph	-	N/A		Clear
5:56 PM	66.9 °F	55.9 °F	68%	30.02 in	10.0 mi	North	18.4 mph	21.9 mph	N/A		Clear
6:56 PM	66.0 °F	55.9 °F	70%	30.02 in	10.0 mi	North	15.0 mph	-	N/A		Clear
7:56 PM	63.0 °F	55.9 °F	78%	30.02 in	10.0 mi	North	15.0 mph	-	N/A		Clear
8:56 PM	61.0 °F	55.9 °F	83%	30.03 in	10.0 mi	North	11.5 mph	-	N/A		Clear
9:56 PM	60.1 °F	55.0 °F	83%	30.04 in	10.0 mi	North	10.4 mph	-	N/A		Partly Cloudy
10:17 PM	60.8 °F	55.4 °F	82%	30.04 in	10.0 mi	North	10.4 mph	-	N/A		Mostly Cloudy
10:26 PM	60.8 °F	55.4 °F	82%	30.04 in	10.0 mi	North	9.2 mph	-	N/A		Scattered Clouds
10:56 PM	60.1 °F	54.0 °F	80%	30.05 in	10.0 mi	North	8.1 mph	-	N/A		Mostly Cloudy
11:05 PM	60.8 °F	55.4 °F	82%	30.04 in	10.0 mi	North	8.1 mph	-	N/A		Scattered Clouds
11:13 PM	59.0 °F	55.4 °F	88%	30.04 in	10.0 mi	North	6.9 mph	-	N/A		Mostly Cloudy
11:56 PM	59.0 °F	54.0 °F	83%	30.05 in	10.0 mi	NNW	4.6 mph	-	N/A		Overcast
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Weather History for Moffett NAS, CA

Friday, September 27, 2013

Friday, September 27, 2013

◀ Previous Day

September ▼

27 ▼

2013 ▼

View

Next Day ▶

Daily

Weekly

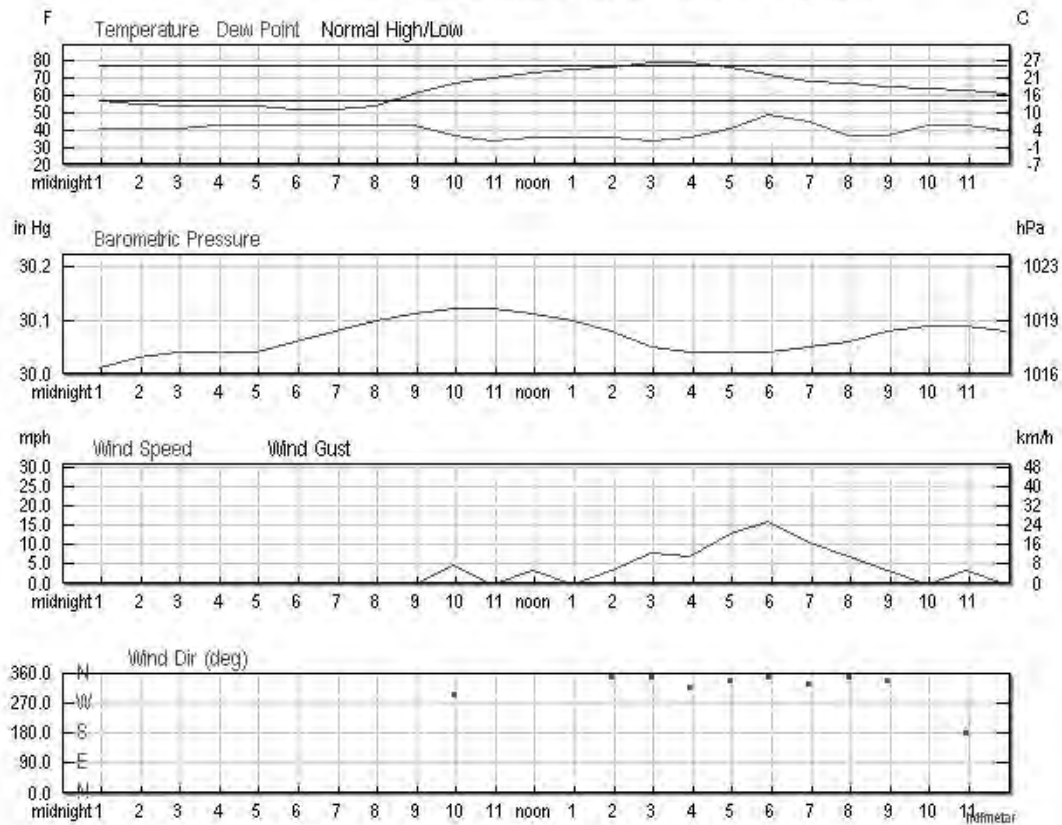
Monthly

Custom

	Actual	Average	Record
Temperature			
Mean Temperature	65 °F	67 °F	
Max Temperature	79 °F	77 °F	94 °F (2010)
Min Temperature	51 °F	57 °F	43 °F (1948)
Degree Days			
Heating Degree Days	0		
Month to date heating degree days	5		
Since 1 July heating degree days	9		
Cooling Degree Days	0		
Month to date cooling degree days	100		
Year to date cooling degree days	459		
Growing Degree Days	15 (Base 50)		
Moisture			
Dew Point	40 °F		
Average Humidity	45		
Maximum Humidity	71		
Minimum Humidity	19		
Precipitation			
Precipitation	0.00 in	0.01 in	0.39 in (1972)
Month to date precipitation	0.50	0.15	
Year to date precipitation	2.32	9.81	
Since 1 July precipitation	0.50	0.18	
Sea Level Pressure			
Sea Level Pressure	30.07 in		
Wind			
Wind Speed	3 mph (NNW)		
Max Wind Speed	18 mph		
Max Gust Speed	21 mph		
Visibility	10 miles		
Events			

T = Trace of Precipitation, MM = Missing Value

Source: NWS Daily Summary



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Hourly Weather History & Observations

Time (PDT)	Temp.	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
12:58 AM	57.0 °F	41.0 °F	55%	30.01 in	10.0 mi	Calm	Calm	-	N/A		Clear
1:58 AM	55.0 °F	41.0 °F	59%	30.03 in	10.0 mi	Calm	Calm	-	N/A		Clear
2:58 AM	53.1 °F	41.0 °F	84%	30.04 in	10.0 mi	Calm	Calm	-	N/A		Clear
3:58 AM	53.1 °F	42.1 °F	88%	30.04 in	10.0 mi	Calm	Calm	-	N/A		Clear
4:58 AM	53.1 °F	42.1 °F	88%	30.04 in	10.0 mi	Calm	Calm	-	N/A		Clear
5:58 AM	52.0 °F	43.0 °F	71%	30.06 in	10.0 mi	Calm	Calm	-	N/A		Clear
6:58 AM	52.0 °F	42.1 °F	89%	30.08 in	10.0 mi	Calm	Calm	-	N/A		Clear
7:58 AM	53.1 °F	43.0 °F	89%	30.10 in	10.0 mi	Calm	Calm	-	N/A		Clear
8:58 AM	60.1 °F	43.0 °F	53%	30.11 in	10.0 mi	Calm	Calm	-	N/A		Clear
9:58 AM	66.9 °F	37.0 °F	33%	30.12 in	10.0 mi	WNW	4.6 mph	-	N/A		Clear
10:58 AM	69.1 °F	34.0 °F	27%	30.12 in	10.0 mi	Calm	Calm	-	N/A		Clear
11:58 AM	73.0 °F	35.0 °F	28%	30.11 in	10.0 mi	Variable	3.5 mph	-	N/A		Clear
12:58 PM	75.0 °F	35.0 °F	24%	30.10 in	10.0 mi	Calm	Calm	-	N/A		Clear

1/30/2014

Weather History for Moffett NAS, CA | Weather Underground

1:56 PM	75.9 °F	35.1 °F	23%	30.08 in	10.0 mi	North	3.5 mph	-	N/A		Clear
2:56 PM	78.1 °F	34.0 °F	20%	30.05 in	10.0 mi	North	8.1 mph	-	N/A		Clear
3:56 PM	78.1 °F	35.1 °F	21%	30.04 in	10.0 mi	NW	6.9 mph	-	N/A		Clear
4:56 PM	75.9 °F	41.0 °F	29%	30.04 in	10.0 mi	NNW	12.7 mph	-	N/A		Clear
5:56 PM	71.1 °F	48.9 °F	45%	30.04 in	10.0 mi	North	16.1 mph	20.7 mph	N/A		Clear
6:56 PM	68.0 °F	45.0 °F	43%	30.05 in	10.0 mi	NNW	10.4 mph	-	N/A		Clear
7:56 PM	66.9 °F	37.0 °F	33%	30.06 in	10.0 mi	North	6.9 mph	-	N/A		Clear
8:56 PM	64.9 °F	37.0 °F	36%	30.08 in	10.0 mi	NNW	3.5 mph	-	N/A		Clear
9:56 PM	64.0 °F	42.1 °F	45%	30.09 in	10.0 mi	Calm	Calm	-	N/A		Clear
10:56 PM	62.1 °F	42.1 °F	48%	30.09 in	10.0 mi	South	3.5 mph	-	N/A		Clear
11:56 PM	60.1 °F	39.9 °F	47%	30.08 in	10.0 mi	Calm	Calm	-	N/A		Clear

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Weather History for Moffett NAS, CA

Monday, February 10, 2014

Monday, February 10, 2014

[« Previous Day](#)

February ▾

10 ▾

2014 ▾

View

[Next Day »](#)

Daily

Weekly

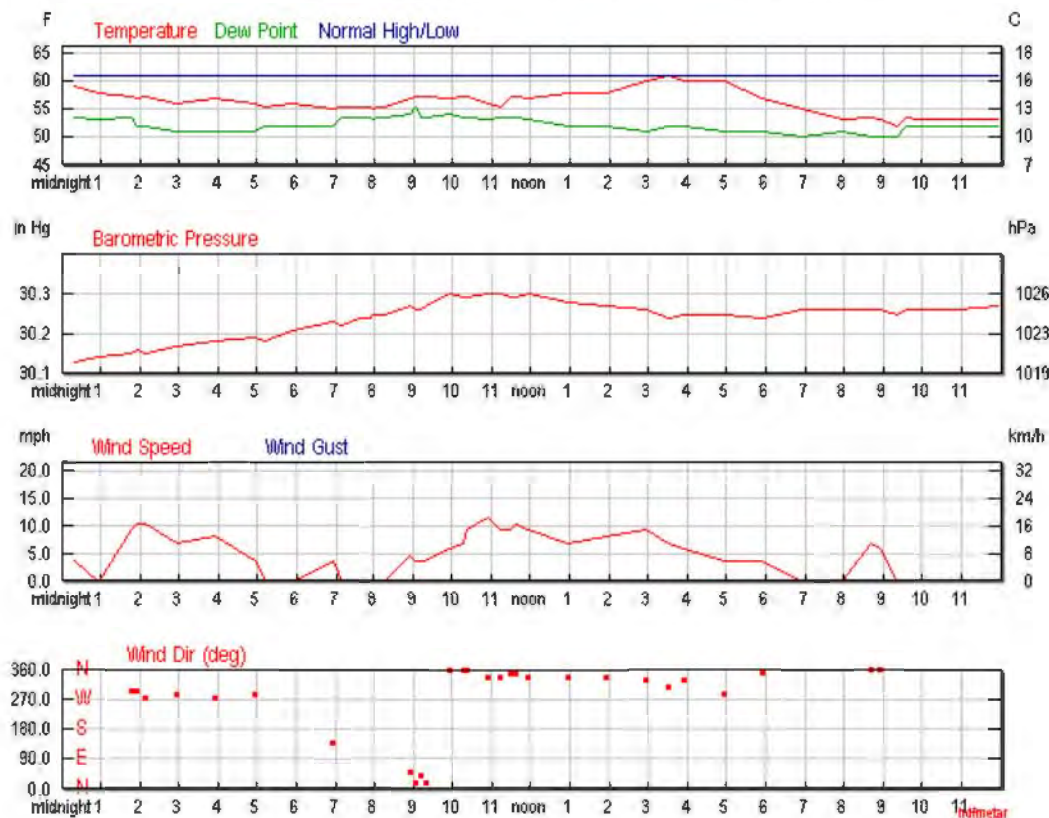
Monthly

Custom

	Actual	Average	Record
Temperature			
Mean Temperature	57 °F	53 °F	
Max Temperature	61 °F	61 °F	75 °F (1988)
Min Temperature	52 °F	45 °F	33 °F (1948)
Degree Days			
Heating Degree Days	8		
Month to date heating degree days	123		
Since 1 July heating degree days	1320		
Cooling Degree Days	0		
Month to date cooling degree days	0		
Year to date cooling degree days	0		
Growing Degree Days	6 (Base 50)		
Moisture			
Dew Point	52 °F		
Average Humidity	63		
Maximum Humidity	93		
Minimum Humidity	72		
Precipitation			
Precipitation	0.02 in	0.11 in	1.01 in (1992)
Month to date precipitation	0.79	1.04	
Year to date precipitation	0.87	3.79	
Since 1 July precipitation	2.13	8.64	
Sea Level Pressure			
Sea Level Pressure	30.24 in		
Wind			
Wind Speed	4 mph (NNW)		
Max Wind Speed	12 mph		
Max Gust Speed	25 mph		
Visibility	9 miles		
Events	Rain		

T = Trace of Precipitation, MM = Missing Value

Source: NWS Daily Summary


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Hourly Weather History & Observations

Time (PST)	Temp.	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
12:19 AM	59.0 °F	53.6 °F	82%	30.13 in	10.0 mi	ESE	3.5 mph	-	N/A		Mostly Cloudy
12:56 AM	57.9 °F	53.1 °F	84%	30.14 in	10.0 mi	Calm	Calm	-	N/A		Partly Cloudy
1:48 AM	57.2 °F	53.6 °F	88%	30.15 in	10.0 mi	WNW	9.2 mph	-	N/A		Mostly Cloudy
1:56 AM	57.0 °F	52.0 °F	83%	30.16 in	10.0 mi	WNW	10.4 mph	-	N/A		Mostly Cloudy
2:09 AM	57.2 °F	51.6 °F	82%	30.15 in	10.0 mi	West	10.4 mph	-	N/A		Scattered Clouds
2:58 AM	55.9 °F	51.1 °F	84%	30.17 in	10.0 mi	WNW	6.9 mph	-	N/A		Clear
3:56 AM	57.0 °F	51.1 °F	81%	30.18 in	10.0 mi	West	8.1 mph	-	N/A		Mostly Cloudy
4:56 AM	55.9 °F	51.1 °F	84%	30.19 in	10.0 mi	WNW	3.5 mph	-	N/A		Overcast
5:12 AM	55.4 °F	51.6 °F	88%	30.18 in	10.0 mi	Calm	Calm	-	N/A		Overcast
5:56 AM	55.9 °F	52.0 °F	87%	30.21 in	10.0 mi	Calm	Calm	-	N/A		Overcast
6:56 AM	55.0 °F	52.0 °F	89%	30.23 in	4.0 mi	SE	3.5 mph	-	0.01 in	Rain	Light Rain

7:09 AM	55.4 °F	53.6 °F	94%	30.22 in	3.0 mi	Calm	Calm	-	0.00 in		Overcast
7:38 AM	55.4 °F	53.6 °F	94%	30.24 in	1.8 mi	Calm	Calm	-	0.00 in	Rain	Light Rain
7:46 AM	55.4 °F	53.6 °F	94%	30.24 in	1.5 mi	Calm	Calm	-	0.00 in	Rain	Light Rain
7:53 AM	55.4 °F	53.6 °F	94%	30.24 in	2.0 mi	Calm	Calm	-	0.00 in	Rain	Light Rain
7:56 AM	55.0 °F	53.1 °F	93%	30.25 in	3.0 mi	Calm	Calm	-	0.00 in		Overcast
8:04 AM	55.4 °F	53.6 °F	94%	30.25 in	8.0 mi	Calm	Calm	-	N/A		Overcast
8:15 AM	55.4 °F	53.6 °F	94%	30.25 in	10.0 mi	Calm	Calm	-	N/A		Mostly Cloudy
8:56 AM	57.0 °F	54.0 °F	89%	30.27 in	10.0 mi	NE	4.6 mph	-	N/A		Mostly Cloudy
9:03 AM	57.2 °F	55.4 °F	94%	30.26 in	10.0 mi	NNE	3.5 mph	-	N/A		Overcast
9:12 AM	57.2 °F	53.6 °F	88%	30.26 in	10.0 mi	NE	3.5 mph	-	N/A		Overcast
9:20 AM	57.2 °F	53.6 °F	88%	30.27 in	10.0 mi	NNE	3.5 mph	-	N/A		Overcast
9:56 AM	57.0 °F	54.0 °F	89%	30.30 in	10.0 mi	North	5.8 mph	-	N/A		Overcast
10:17 AM	57.2 °F	53.6 °F	88%	30.29 in	9.0 mi	North	6.9 mph	-	N/A		Overcast
10:23 AM	57.2 °F	53.6 °F	88%	30.29 in	6.0 mi	North	9.2 mph	-	N/A		Overcast
10:56 AM	55.9 °F	53.1 °F	90%	30.30 in	10.0 mi	NNW	11.5 mph	-	0.00 in		Overcast
11:13 AM	55.4 °F	53.6 °F	94%	30.30 in	10.0 mi	NNW	9.2 mph	-	N/A		Overcast
11:30 AM	57.2 °F	53.6 °F	88%	30.29 in	10.0 mi	North	9.2 mph	-	N/A		Overcast
11:38 AM	57.2 °F	53.6 °F	88%	30.29 in	10.0 mi	North	10.4 mph	-	N/A		Overcast
11:56 AM	57.0 °F	53.1 °F	87%	30.30 in	10.0 mi	NNW	9.2 mph	-	N/A		Overcast
12:56 PM	57.9 °F	52.0 °F	81%	30.28 in	10.0 mi	NNW	6.9 mph	-	N/A		Overcast
1:56 PM	57.9 °F	52.0 °F	81%	30.27 in	10.0 mi	NNW	8.1 mph	-	N/A		Overcast
2:56 PM	60.1 °F	51.1 °F	72%	30.26 in	10.0 mi	NNW	9.2 mph	-	N/A		Mostly Cloudy
3:31 PM	60.8 °F	51.8 °F	72%	30.24 in	10.0 mi	NW	6.9 mph	-	N/A		Scattered Clouds
3:56 PM	60.1 °F	52.0 °F	75%	30.25 in	10.0 mi	NNW	5.8 mph	-	N/A		Clear
4:56 PM	60.1 °F	51.1 °F	72%	30.25 in	10.0 mi	WNW	3.5 mph	-	N/A		Partly Cloudy
5:56 PM	57.0 °F	51.1 °F	81%	30.24 in	10.0 mi	North	3.5 mph	-	N/A		Clear
6:56 PM	55.0 °F	50.0 °F	83%	30.26 in	10.0 mi	Calm	Calm	-	N/A		Clear
7:56 PM	53.1 °F	51.1 °F	93%	30.26 in	10.0 mi	Calm	Calm	-	N/A		Clear
8:42 PM	53.6 °F	50.0 °F	88%	30.26 in	10.0 mi	North	6.9 mph	-	0.01 in		Partly Cloudy
8:56 PM	53.1 °F	50.0 °F	89%	30.26 in	10.0 mi	North	5.8 mph	-	0.01 in		Clear
9:23 PM	51.8 °F	50.0 °F	94%	30.25 in	7.0 mi	Calm	Calm	-	N/A		Scattered Clouds
9:34 PM	53.6 °F	51.8 °F	94%	30.26 in	7.0 mi	Calm	Calm	-	N/A		Mostly Cloudy
9:56 PM	53.1 °F	52.0 °F	96%	30.26 in	8.0 mi	Calm	Calm	-	N/A		Overcast
10:56 PM	53.1 °F	52.0 °F	96%	30.26 in	9.0 mi	Calm	Calm	-	N/A		Overcast
11:56 PM	53.1 °F	52.0 °F	96%	30.27 in	10.0 mi	Calm	Calm	-	N/A		Mostly Cloudy

APPENDIX B

**Analytical Laboratory Report For Indoor And Outdoor
Air Samples Collected On 27 September 2013**

Data Usability Summary Report (DUSR)
1160 Kern AMD site (39800-001)
Analytical Laboratory: Curtis & Tompkins, Ltd. - Berkeley, CA
Sample Delivery Group # 249457

Analytical results for the project samples were reviewed to evaluate the data usability. Data was assessed in accordance with guidance from the following Federal and/or State guidance documents:

- USEPA National Functional Guidelines for Organic Data Review (EPA 540-R-08-01) and/or
USEPA National Functional Guidelines for Low Concentration Organic Data Review (EPA 540-R-00-006)

and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996, or Standard Methods for the Examination of Water and Wastewater, Eds 18-20.

This DUSR pertains to the following samples:

Sample ID
AMBIENT-09272013
IA-06-09272013
IA-02-09272013
IA-05-09272013
IA-09-09272013
IA-09B-09272013

Project Samples were analyzed according to the following analytical methods:

	Parameter	Analytical Method	Holding Time Criteria
1.	VOCs	EPA TO-15	30 days

The following items/criteria applicable to the analysis of project samples and associated QA/QC procedures were reviewed.

- Holding Times
- Blank Sample Analysis
- System Monitoring Compound Recoveries
- Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries
- Field Duplicate Sample Analysis
- Sample Data Reporting Format
- Data Qualifiers
- Summary

Preservation and Holding Times

Maximum allowable holding times, measured from the time of sample collection to the time of sample preparation or analysis, were met for each project sample analyzed as part of this sample delivery group. No qualification of the data is recommended.

Blank Sample Analysis

In accordance with cited USEPA guidelines, positive sample results should be reported unless the concentration of the compound in the project sample is less than or equal to 10 times (10X) the amount in any blank for metals and the common organic laboratory contaminants (methylene chloride, acetone, 2-butanone, cyclohexane, and phthalate esters), or 5 times (5X) the amount for other target compounds. Target analytes were not detected in associated blank samples (trip, equipment, method) prepared and analyzed concurrently with the project samples. No qualification of the data is recommended.

System Monitoring Compound Recoveries

System monitoring/surrogate compounds are added to each sample prior to analysis of organic parameters to confirm the efficiency of the sample preparation procedure. The calculated recovery for each surrogate compound was evaluated to confirm the accuracy of the reported results. The calculated recovery of these compounds fell within the laboratory specific quality control criteria. No qualification of the data is recommended.

Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries

Analytical precision and accuracy was evaluated based on the laboratory control and matrix spike sample analyses performed concurrently with the project samples. For matrix spike samples, after the addition of a known amount of each target analyte to the sample matrix, the sample was analyzed to confirm the ability to identify these compounds within the sample matrix. For LCS analyses, after the addition of a known amount of each target analyte into laboratory reagent water, the sample was analyzed to confirm the ability of the analytical system to accurately quantify the compounds. The reported recovery of MS/MSD and LCS analyses fell within the laboratory QA acceptance criteria. No qualification of the data is recommended.

Field Duplicate Sample Analysis

The overall variability attributable to the sampling procedure, sample matrix, and laboratory procedures, was evaluated by assessing the relative percent difference (RPD) data from field duplicate samples. All calculated RPD values were within matrix specific data quality objectives, with the exception of results qualified "J" as shown in the table(s) below:

Target Analyte(s)	Original Sample ID.	FD Sample ID.	%RPD	Flag Original and FD sample results with:
	IA-09-09272013	IA-09B-09272013		
All Analytes	0	0	NA	No RPD, All ND

Action:

If the sample matrix is solid and the %RPD is greater than 50%, the original sample results are qualified "J". If the sample matrix is water or air and the %RPD is greater than 35%, the original sample results are qualified "J".

Sample Data Reporting Format

The sample data are presented using USEPA Contract Laboratory Protocol (CLP) format or equivalent. The data package has been reviewed for completeness and found to contain each required sample result and associated QA/QC report form. The reporting format is complete and compliant with the objectives of the project. No qualification of the data is recommended.

Data Qualifiers

Samples that contain results between the MDL and RL were flagged as estimated, "J", by the laboratory. The data user should be aware that there is a possibility of false positive or mis-identification at the quantitation levels. The laboratory also qualified results when target analytes were detected in the associated method/preparation blank sample. Based on a spot check of the data qualifiers used, these flags appeared to be applied to the reported results in accordance with EPA guidance.

Summary

The results presented in each report were found to be compliant with the data quality objectives for the project and usable. Based on our review, the usability of the data is 100%, with the few exceptions noted above.





Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

**Laboratory Job Number 249457
ANALYTICAL REPORT**

Haley & Aldrich, Inc.
1956 Webster Street
Oakland, CA 94612

Project : 39800-001

Level : II

<u>Sample ID</u>	<u>Lab ID</u>
AMBIENT-09272013	249457-001
IA-06-09272013	249457-002
IA-02-09272013	249457-003
IA-05-09272013	249457-004
IA-09-09272013	249457-005
IA-09B-09272013	249457-006

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226

Date: 10/04/2013

NELAP # 01107CA

CASE NARRATIVE

Laboratory number: 249457
Client: Haley & Aldrich, Inc.
Project: 39800-001
Request Date: 09/27/13
Samples Received: 09/27/13

This data package contains sample and QC results for six air samples, requested for the above referenced project on 09/27/13. The samples were received intact.

Volatile Organics in Air by MS (EPA TO-15):

No analytical problems were encountered.

Berkeley, CA 94710
(510)486-0900 Phone
(510)486-0532 Fax

Page 1 of 1
Chain of Custody #: 09272012

C&T LOGIN # 249457

Sampler: Pete Scaramella
Report To: PScaramella@baylor-splanning.com
Company: Hiley @ Aldrich
Telephone: 510 879-4559
Email: pscaramella@baylor-splanning.com

Project No: 39800-001
Project Name: 39800-001
EDD Format: Rpt Level: ☒ I ☐ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH ☒ Standard

[illegible]

Notes:	<p>✓ Analyze with TU-15</p> <p>in Selective ion mode for following:</p> <p>-trichloroethane, trichloroethene,</p> <p>cis-1,2-dichloroethane, trans-1,2-dichloroethane, vinyl chloride,</p> <p>Freon 113, 1,1,1-trichloroethane, 1,1-dichloroethane,</p> <p>1,1-dichloroethene, 1,2-dichlorobenzene, trichlorobenzene</p>	RI
--------	--	----

RELIQUISHED BY:

RECEIVED BY:

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME 1300

DATE/TIME

DATE/TIME

3 of 9

COOLER RECEIPT CHECKLIST



Curtis & Tompkins, Ltd.

Login # 249457 Date Received 9/27/13 Number of coolers ✓
 Client H & A Project 39800-001

Date Opened 9/27/13 By (print) TR (sign) Tina Rankin
 Date Logged in ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) _____ YES (NO)
 Shipping info _____

2A. Were custody seals present? ☐ YES (circle) on cooler on samples ☒ NO
 How many _____ Name _____ Date _____

2B. Were custody seals intact upon arrival? _____ YES NO (N/A)

3. Were custody papers dry and intact when received? (YES) NO

4. Were custody papers filled out properly (ink, signed, etc)? (YES) NO

5. Is the project identifiable from custody papers? (If so fill out top of form) (YES) NO

6. Indicate the packing in cooler: (if other, describe) _____

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☐ Wet ☐ Blue/Gel ☒ None Temp(°C) _____

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES (NO)
 If YES, what time were they transferred to freezer? _____

9. Did all bottles arrive unbroken/unopened? (YES) NO

10. Are there any missing / extra samples? (YES) NO

11. Are samples in the appropriate containers for indicated tests? (YES) NO

12. Are sample labels present, in good condition and complete? (YES) NO

13. Do the sample labels agree with custody papers? (YES) NO

14. Was sufficient amount of sample sent for tests requested? (YES) NO

15. Are the samples appropriately preserved? _____ YES NO (N/A)

16. Did you check preservatives for all bottles for each sample? _____ YES NO (N/A)

17. Did you document your preservative check? _____ YES NO (N/A)

18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)

19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)

20. Are bubbles > 6mm absent in VOA samples? _____ YES NO (N/A)

21. Was the client contacted concerning this sample delivery? _____ YES (NO)

If YES, Who was called? _____ By _____ Date: _____

COMMENTS

Volatile Organics in Air

Lab #:	249457	Prep:	METHOD
Client:	Haley & Aldrich, Inc.	Analysis:	EPA TO-15
Project#:	39800-001		
Matrix:	Air	Batch#:	203591
Units (V):	ppbv	Sampled:	09/27/13
Units (M):	ug/m3	Received:	09/27/13

Field ID:	AMBIENT-09272013	Diln Fac:	1.940
Type:	SAMPLE	Analyzed:	10/01/13
Lab ID:	249457-001		

Analyte	Result (V)	RL	Result (M)	RL
Vinyl Chloride	ND	0.19	ND	0.50
1,1-Dichloroethene	ND	0.97	ND	3.8
Freon 113	ND	0.97	ND	7.4
trans-1,2-Dichloroethene	ND	0.97	ND	3.8
1,1-Dichloroethane	ND	0.97	ND	3.9
cis-1,2-Dichloroethene	ND	0.97	ND	3.8
1,1,1-Trichloroethane	ND	0.97	ND	5.3
Trichloroethene	ND	0.19	ND	1.0
Tetrachloroethene	ND	0.97	ND	6.6
Chlorobenzene	ND	0.97	ND	4.5
1,2-Dichlorobenzene	ND	0.97	ND	5.8

Surrogate	%REC	Limits
Bromofluorobenzene	104	70-130

Field ID:	IA-06-09272013	Diln Fac:	1.860
Type:	SAMPLE	Analyzed:	10/01/13
Lab ID:	249457-002		

Analyte	Result (V)	RL	Result (M)	RL
Vinyl Chloride	ND	0.19	ND	0.48
1,1-Dichloroethene	ND	0.93	ND	3.7
Freon 113	ND	0.93	ND	7.1
trans-1,2-Dichloroethene	ND	0.93	ND	3.7
1,1-Dichloroethane	ND	0.93	ND	3.8
cis-1,2-Dichloroethene	ND	0.93	ND	3.7
1,1,1-Trichloroethane	ND	0.93	ND	5.1
Trichloroethene	ND	0.19	ND	1.0
Tetrachloroethene	ND	0.93	ND	6.3
Chlorobenzene	ND	0.93	ND	4.3
1,2-Dichlorobenzene	ND	0.93	ND	5.6

Surrogate	%REC	Limits
Bromofluorobenzene	104	70-130

ND= Not Detected

RL= Reporting Limit

Result M= Result in mass units

Result V= Result in volume units

Volatile Organics in Air			
Lab #:	249457	Prep:	METHOD
Client:	Haley & Aldrich, Inc.	Analysis:	EPA TO-15
Project#:	39800-001		
Matrix:	Air	Batch#:	203591
Units (V):	ppbv	Sampled:	09/27/13
Units (M):	ug/m3	Received:	09/27/13

Field ID: IA-02-09272013
 Type: SAMPLE
 Lab ID: 249457-003

Diln Fac: 2.150
 Analyzed: 10/02/13

Analyte	Result (V)	RL	Result (M)	RL
Vinyl Chloride	ND	0.22	ND	0.55
1,1-Dichloroethene	ND	1.1	ND	4.3
Freon 113	ND	1.1	ND	8.2
trans-1,2-Dichloroethene	ND	1.1	ND	4.3
1,1-Dichloroethane	ND	1.1	ND	4.4
cis-1,2-Dichloroethene	ND	1.1	ND	4.3
1,1,1-Trichloroethane	ND	1.1	ND	5.9
Trichloroethene	0.97	0.22	5.2	1.2
Tetrachloroethene	ND	1.1	ND	7.3
Chlorobenzene	ND	1.1	ND	4.9
1,2-Dichlorobenzene	ND	1.1	ND	6.5

Surrogate	%REC	Limits
Bromofluorobenzene	103	70-130

Field ID: IA-05-09272013
 Type: SAMPLE
 Lab ID: 249457-004

Diln Fac: 2.060
 Analyzed: 10/02/13

Analyte	Result (V)	RL	Result (M)	RL
Vinyl Chloride	ND	0.21	ND	0.53
1,1-Dichloroethene	ND	1.0	ND	4.1
Freon 113	ND	1.0	ND	7.9
trans-1,2-Dichloroethene	ND	1.0	ND	4.1
1,1-Dichloroethane	ND	1.0	ND	4.2
cis-1,2-Dichloroethene	ND	1.0	ND	4.1
1,1,1-Trichloroethane	ND	1.0	ND	5.6
Trichloroethene	ND	0.21	ND	1.1
Tetrachloroethene	ND	1.0	ND	7.0
Chlorobenzene	ND	1.0	ND	4.7
1,2-Dichlorobenzene	ND	1.0	ND	6.2

Surrogate	%REC	Limits
Bromofluorobenzene	105	70-130

ND= Not Detected
 RL= Reporting Limit
 Result M= Result in mass units
 Result V= Result in volume units

Volatile Organics in Air			
Lab #:	249457	Prep:	METHOD
Client:	Haley & Aldrich, Inc.	Analysis:	EPA TO-15
Project#:	39800-001		
Matrix:	Air	Batch#:	203591
Units (V):	ppbv	Sampled:	09/27/13
Units (M):	ug/m3	Received:	09/27/13

Field ID: IA-09-09272013
 Type: SAMPLE
 Lab ID: 249457-005

Diln Fac: 3.380
 Analyzed: 10/02/13

Analyte	Result (V)	RL	Result (M)	RL
Vinyl Chloride	ND	0.34	ND	0.86
1,1-Dichloroethene	ND	1.7	ND	6.7
Freon 113	ND	1.7	ND	13
trans-1,2-Dichloroethene	ND	1.7	ND	6.7
1,1-Dichloroethane	ND	1.7	ND	6.8
cis-1,2-Dichloroethene	ND	1.7	ND	6.7
1,1,1-Trichloroethane	ND	1.7	ND	9.2
Trichloroethene	ND	0.34	ND	1.8
Tetrachloroethene	ND	1.7	ND	11
Chlorobenzene	ND	1.7	ND	7.8
1,2-Dichlorobenzene	ND	1.7	ND	10

Surrogate	%REC	Limits
Bromofluorobenzene	101	70-130

Field ID: IA-09B-09272013
 Type: SAMPLE
 Lab ID: 249457-006

Diln Fac: 3.400
 Analyzed: 10/02/13

Analyte	Result (V)	RL	Result (M)	RL
Vinyl Chloride	ND	0.34	ND	0.87
1,1-Dichloroethene	ND	1.7	ND	6.7
Freon 113	ND	1.7	ND	13
trans-1,2-Dichloroethene	ND	1.7	ND	6.7
1,1-Dichloroethane	ND	1.7	ND	6.9
cis-1,2-Dichloroethene	ND	1.7	ND	6.7
1,1,1-Trichloroethane	ND	1.7	ND	9.3
Trichloroethene	ND	0.34	ND	1.8
Tetrachloroethene	ND	1.7	ND	12
Chlorobenzene	ND	1.7	ND	7.8
1,2-Dichlorobenzene	ND	1.7	ND	10

Surrogate	%REC	Limits
Bromofluorobenzene	99	70-130

ND= Not Detected
 RL= Reporting Limit
 Result M= Result in mass units
 Result V= Result in volume units

Volatile Organics in Air			
Lab #:	249457	Prep:	METHOD
Client:	Haley & Aldrich, Inc.	Analysis:	EPA TO-15
Project#:	39800-001		
Matrix:	Air	Batch#:	203591
Units (V):	ppbv	Sampled:	09/27/13
Units (M):	ug/m3	Received:	09/27/13

Type: BLANK Diln Fac: 1.000
Lab ID: QC709947 Analyzed: 10/01/13

Analyte	Result (V)	RL	Result (M)	RL
Vinyl Chloride	ND	0.10	ND	0.26
1,1-Dichloroethene	ND	0.50	ND	2.0
Freon 113	ND	0.50	ND	3.8
trans-1,2-Dichloroethene	ND	0.50	ND	2.0
1,1-Dichloroethane	ND	0.50	ND	2.0
cis-1,2-Dichloroethene	ND	0.50	ND	2.0
1,1,1-Trichloroethane	ND	0.50	ND	2.7
Trichloroethene	ND	0.10	ND	0.54
Tetrachloroethene	ND	0.50	ND	3.4
Chlorobenzene	ND	0.50	ND	2.3
1,2-Dichlorobenzene	ND	0.50	ND	3.0

Surrogate	%REC	Limits
Bromofluorobenzene	112	70-130

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units
Page 4 of 4

Batch QC Report

Volatile Organics in Air			
Lab #:	249457	Prep:	METHOD
Client:	Haley & Aldrich, Inc.	Analysis:	EPA TO-15
Project#:	39800-001		
Matrix:	Air	Batch#:	203591
Units (V):	ppbv	Analyzed:	10/01/13
Diln Fac:	1.000		

Type: BS Lab ID: QC709945

Analyte	Spiked	Result (V)	%REC	Limits
Vinyl Chloride	10.00	11.76	118	70-130
1,1-Dichloroethene	10.00	11.80	118	70-130
Freon 113	10.00	11.20	112	70-130
trans-1,2-Dichloroethene	10.00	12.82	128	70-130
1,1-Dichloroethane	10.00	11.53	115	70-130
cis-1,2-Dichloroethene	10.00	11.07	111	70-130
1,1,1-Trichloroethane	10.00	10.49	105	70-130
Trichloroethene	10.00	10.72	107	70-130
Tetrachloroethene	10.00	10.07	101	70-130
Chlorobenzene	10.00	9.445	94	70-130
1,2-Dichlorobenzene	10.00	12.52	125	70-130

Surrogate	%REC	Limits
Bromofluorobenzene	118	70-130

Type: BSD Lab ID: QC709946

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
Vinyl Chloride	10.00	11.77	118	70-130	0	24
1,1-Dichloroethene	10.00	11.93	119	70-130	1	20
Freon 113	10.00	11.27	113	70-130	1	24
trans-1,2-Dichloroethene	10.00	12.92	129	70-130	1	20
1,1-Dichloroethane	10.00	11.52	115	70-130	0	20
cis-1,2-Dichloroethene	10.00	11.18	112	70-130	1	20
1,1,1-Trichloroethane	10.00	10.42	104	70-130	1	21
Trichloroethene	10.00	10.28	103	70-130	4	20
Tetrachloroethene	10.00	9.901	99	70-130	2	20
Chlorobenzene	10.00	9.270	93	70-130	2	21
1,2-Dichlorobenzene	10.00	11.68	117	70-130	7	22

Surrogate	%REC	Limits
Bromofluorobenzene	111	70-130

RPD= Relative Percent Difference
Result V= Result in volume units

APPENDIX C

**Analytical Laboratory Report For Indoor And Outdoor
Air Samples Collected On 10 February 2014**

Data Usability Summary Report (DUSR)
1160 Kern Ave
Analytical Laboratory: TestAmerica, Inc. - West Sacramento, CA
Sample Delivery Group # 320-6042-1

Analytical results for the project samples were reviewed to evaluate the data usability. Data was assessed in accordance with guidance from the following Federal and/or State guidance documents:

- USEPA National Functional Guidelines for Organic Data Review (EPA 540-R-08-01) and/or
USEPA National Functional Guidelines for Low Concentration Organic Data Review (EPA 540-R-00-006)

and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996, or Standard Methods for the Examination of Water and Wastewater, Eds 18-20.

This DUSR pertains to the following samples:

Sample ID
AMBIENT-02102014
IA-02-02102014
IA-02B-02102014
IA-05-02102014
IA-06-02102014
IA-07-02102014

Project Samples were analyzed according to the following analytical methods

	Parameter	Analytical Method	Holding Time Criteria
1.	VOCs	EPA TO-15	30 days

The following items/criteria applicable to the analysis of project samples and associated QA/QC procedures were reviewed

- Holding Times
- Project-specific Reporting Limits
- Blank Sample Analysis
- System Monitoring Compound Recoveries
- Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries
- Field Duplicate Sample Analysis
- Sample Data Reporting Format
- Data Qualifiers
- Summary

Preservation and Holding Times

Maximum allowable holding times, measured from the time of sample collection to the time of sample preparation or analysis, were met for each project sample analyzed as part of this sample delivery group. No qualification of the data is recommended.

Project-specific Reporting Limits

The reporting limits for the samples within this Sample Delivery Group (SDG) met or exceeded the minimum reporting limit requirements specified by the Project-specific Quality Assurance Project Plan (QAPP). No qualification of the data is recommended.

Blank Sample Analysis

In accordance with cited USEPA guidelines, positive sample results should be reported unless the concentration of the compound in the project sample is less than or equal to 10 times (10X) the amount in any blank for metals and the common organic laboratory contaminants (methylene chloride, acetone, 2-butanone, cyclohexane, and phthalate esters), or 5 times (5X) the amount for other target compounds. Target analytes were not detected in associated blank samples (trip, equipment, method) prepared and analyzed concurrently with the project samples. No qualification of the data is recommended.

System Monitoring Compound Recoveries

System monitoring/surrogate compounds are added to each sample prior to analysis of organic parameters to confirm the efficiency of the sample preparation procedure. The calculated recovery for each surrogate compound was evaluated to confirm the accuracy of the reported results. The calculated recovery of these compounds fell within the laboratory specific quality control criteria. No qualification of the data is recommended.

Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries

Analytical precision and accuracy was evaluated based on the laboratory control and matrix spike sample analyses performed concurrently with the project samples. For matrix spike samples, after the addition of a known amount of each target analyte to the sample matrix, the sample was analyzed to confirm the ability to identify these compounds within the sample matrix. For LCS analyses, after the addition of a known amount of each target analyte into laboratory reagent water, the sample was analyzed to confirm the ability of the analytical system to accurately quantify the compounds. The reported recovery of MS/MSD and LCS analyses fell within the laboratory QA acceptance criteria. No qualification of the data is recommended.

Field Duplicate Sample Analysis

The overall variability attributable to the sampling procedure, sample matrix, and laboratory procedures, was evaluated by assessing the relative percent difference (RPD) data from field duplicate samples. All calculated RPD values were within matrix specific data quality objectives, with the exception of results qualified "J" as shown in the table(s) below:

Target Analyte(s)	Original Sample ID.	FD Sample ID.	%RPD	Flag Original and FD sample results with:
	IA-02-02102014	IA-02B-02102014		
Chlorobenzene	0.04	0.033	19%	
Tetrachloroethene	1.8	1.7	6%	
Freon 113	0.78	0.78	0%	
Trichloroethene	3.5	3.3	6%	
1,1,1-Trichloroethane	0.12	0.13	8%	

Action:

If the sample matrix is solid and the %RPD is greater than 50%, the original sample results are qualified "J". If the sample matrix is water or air and the %RPD is greater than 35%, the original sample results are qualified "J".

Sample Data Reporting Format

The sample data are presented using USEPA Contract Laboratory Protocol (CLP) format or equivalent. The data package has been reviewed for completeness and found to contain each required sample result and associated QA/QC report form. The reporting format is complete and compliant with the objectives of the project. No qualification of the data is recommended.

Data Qualifiers

Samples that contain results between the MDL and RL were flagged as estimated, "J", by the laboratory. The data user should be aware that there is a possibility of false positive or mis-identification at the quantitation levels. The laboratory also qualified results when target analytes were detected in the associated method/preparation blank sample. Based on a spot check of the data qualifiers used, these flags appeared to be applied to the reported results in accordance with EPA guidance.

Summary

The results presented in each report were found to be compliant with the data quality objectives for the project and usable. Based on our review, the usability of the data is 100%, with the few exceptions noted above.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Sacramento

880 Riverside Parkway

West Sacramento, CA 95605

Tel: (916)373-5600

TestAmerica Job ID: 320-6042-1

Client Project/Site: 1160 Kern Ave

For:

Haley & Aldrich, Inc.

1956 Webster Street

Suite 450

Oakland, California 94612

Attn: Peter Scaramella



Authorized for release by:

2/13/2014 6:55:59 AM

Beth Riley, Project Manager II

(714)258-8610

beth.riley@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Qualifiers

Air - GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Job ID: 320-6042-1

Laboratory: TestAmerica Sacramento

Narrative

Job Narrative 320-6042-1

Receipt

The samples were received on 2/11/2014 9:30 AM; the samples arrived in good condition.

Air - GC/MS VOA

No analytical or quality issues were noted.

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Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Client Sample ID: AMBIENT-02102014

Lab Sample ID: 320-6042-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	0.0092	J	0.020	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
1,2-Dichlorobenzene	0.012	J	0.050	0.010	ppb v/v	1		TO-15 SIM	Total/NA
Freon 113	0.13		0.030	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
Trichloroethene	0.015	J	0.020	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
1,1,1-Trichloroethane	0.012	J	0.020	0.0018	ppb v/v	1		TO-15 SIM	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	0.042	J	0.092	0.023	ug/m3	1		TO-15 SIM	Total/NA
1,2-Dichlorobenzene	0.074	J	0.30	0.060	ug/m3	1		TO-15 SIM	Total/NA
Freon 113	0.96		0.23	0.038	ug/m3	1		TO-15 SIM	Total/NA
Trichloroethene	0.081	J	0.11	0.027	ug/m3	1		TO-15 SIM	Total/NA
1,1,1-Trichloroethane	0.063	J	0.11	0.0098	ug/m3	1		TO-15 SIM	Total/NA

Client Sample ID: IA-02-02102014

Lab Sample ID: 320-6042-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	0.0087	J	0.020	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
Tetrachloroethene	0.26		0.020	0.010	ppb v/v	1		TO-15 SIM	Total/NA
Freon 113	0.10		0.030	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
Trichloroethene	0.65		0.020	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
1,1,1-Trichloroethane	0.023		0.020	0.0018	ppb v/v	1		TO-15 SIM	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	0.040	J	0.092	0.023	ug/m3	1		TO-15 SIM	Total/NA
Tetrachloroethene	1.8		0.14	0.068	ug/m3	1		TO-15 SIM	Total/NA
Freon 113	0.78		0.23	0.038	ug/m3	1		TO-15 SIM	Total/NA
Trichloroethene	3.5		0.11	0.027	ug/m3	1		TO-15 SIM	Total/NA
1,1,1-Trichloroethane	0.12		0.11	0.0098	ug/m3	1		TO-15 SIM	Total/NA

Client Sample ID: IA-02B-02102014

Lab Sample ID: 320-6042-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	0.0072	J	0.020	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
Tetrachloroethene	0.25		0.020	0.010	ppb v/v	1		TO-15 SIM	Total/NA
Freon 113	0.10		0.030	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
Trichloroethene	0.62		0.020	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
1,1,1-Trichloroethane	0.024		0.020	0.0018	ppb v/v	1		TO-15 SIM	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	0.033	J	0.092	0.023	ug/m3	1		TO-15 SIM	Total/NA
Tetrachloroethene	1.7		0.14	0.068	ug/m3	1		TO-15 SIM	Total/NA
Freon 113	0.78		0.23	0.038	ug/m3	1		TO-15 SIM	Total/NA
Trichloroethene	3.3		0.11	0.027	ug/m3	1		TO-15 SIM	Total/NA
1,1,1-Trichloroethane	0.13		0.11	0.0098	ug/m3	1		TO-15 SIM	Total/NA

Client Sample ID: IA-05-02102014

Lab Sample ID: 320-6042-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	0.0082	J	0.020	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
Tetrachloroethene	0.14		0.020	0.010	ppb v/v	1		TO-15 SIM	Total/NA
Freon 113	0.081		0.030	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
Trichloroethene	0.18		0.020	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
1,1,1-Trichloroethane	0.012	J	0.020	0.0018	ppb v/v	1		TO-15 SIM	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Client Sample ID: IA-05-02102014 (Continued)

Lab Sample ID: 320-6042-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	0.038	J	0.092	0.023	ug/m3	1		TO-15 SIM	Total/NA
Tetrachloroethene	0.92		0.14	0.068	ug/m3	1		TO-15 SIM	Total/NA
Freon 113	0.62		0.23	0.038	ug/m3	1		TO-15 SIM	Total/NA
Trichloroethene	0.97		0.11	0.027	ug/m3	1		TO-15 SIM	Total/NA
1,1,1-Trichloroethane	0.063	J	0.11	0.0098	ug/m3	1		TO-15 SIM	Total/NA

Client Sample ID: IA-06-02102014

Lab Sample ID: 320-6042-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	0.0074	J	0.020	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
Tetrachloroethene	0.14		0.020	0.010	ppb v/v	1		TO-15 SIM	Total/NA
Freon 113	0.081		0.030	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
Trichloroethene	0.18		0.020	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
1,1,1-Trichloroethane	0.012	J	0.020	0.0018	ppb v/v	1		TO-15 SIM	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	0.034	J	0.092	0.023	ug/m3	1		TO-15 SIM	Total/NA
Tetrachloroethene	0.96		0.14	0.068	ug/m3	1		TO-15 SIM	Total/NA
Freon 113	0.62		0.23	0.038	ug/m3	1		TO-15 SIM	Total/NA
Trichloroethene	0.98		0.11	0.027	ug/m3	1		TO-15 SIM	Total/NA
1,1,1-Trichloroethane	0.068	J	0.11	0.0098	ug/m3	1		TO-15 SIM	Total/NA

Client Sample ID: IA-07-02102014

Lab Sample ID: 320-6042-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	0.0065	J	0.020	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
Tetrachloroethene	0.11		0.020	0.010	ppb v/v	1		TO-15 SIM	Total/NA
Freon 113	0.065		0.030	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
Trichloroethene	0.17		0.020	0.0050	ppb v/v	1		TO-15 SIM	Total/NA
1,1,1-Trichloroethane	0.016	J	0.020	0.0018	ppb v/v	1		TO-15 SIM	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	0.030	J	0.092	0.023	ug/m3	1		TO-15 SIM	Total/NA
Tetrachloroethene	0.72		0.14	0.068	ug/m3	1		TO-15 SIM	Total/NA
Freon 113	0.50		0.23	0.038	ug/m3	1		TO-15 SIM	Total/NA
Trichloroethene	0.91		0.11	0.027	ug/m3	1		TO-15 SIM	Total/NA
1,1,1-Trichloroethane	0.085	J	0.11	0.0098	ug/m3	1		TO-15 SIM	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Client Sample ID: AMBIENT-02102014

Lab Sample ID: 320-6042-1

Date Collected: 02/10/14 07:15

Matrix: Air

Date Received: 02/11/14 09:30

Sample Container: Summa Canister 6L

Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	0.0092	J	0.020	0.0050	ppb v/v			02/11/14 20:59	1
1,2-Dichlorobenzene	0.012	J	0.050	0.010	ppb v/v			02/11/14 20:59	1
1,1-Dichloroethane	ND		0.020	0.0050	ppb v/v			02/11/14 20:59	1
1,1-Dichloroethene	ND		0.020	0.0050	ppb v/v			02/11/14 20:59	1
cis-1,2-Dichloroethene	ND		0.020	0.0023	ppb v/v			02/11/14 20:59	1
trans-1,2-Dichloroethene	ND		0.020	0.0050	ppb v/v			02/11/14 20:59	1
Tetrachloroethene	ND		0.020	0.010	ppb v/v			02/11/14 20:59	1
Freon 113	0.13		0.030	0.0050	ppb v/v			02/11/14 20:59	1
Trichloroethene	0.015	J	0.020	0.0050	ppb v/v			02/11/14 20:59	1
1,1,1-Trichloroethane	0.012	J	0.020	0.0018	ppb v/v			02/11/14 20:59	1
Vinyl chloride	ND		0.020	0.0040	ppb v/v			02/11/14 20:59	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	0.042	J	0.092	0.023	ug/m3			02/11/14 20:59	1
1,2-Dichlorobenzene	0.074	J	0.30	0.060	ug/m3			02/11/14 20:59	1
1,1-Dichloroethane	ND		0.081	0.020	ug/m3			02/11/14 20:59	1
1,1-Dichloroethene	ND		0.079	0.020	ug/m3			02/11/14 20:59	1
cis-1,2-Dichloroethene	ND		0.079	0.0091	ug/m3			02/11/14 20:59	1
trans-1,2-Dichloroethene	ND		0.079	0.020	ug/m3			02/11/14 20:59	1
Tetrachloroethene	ND		0.14	0.068	ug/m3			02/11/14 20:59	1
Freon 113	0.96		0.23	0.038	ug/m3			02/11/14 20:59	1
Trichloroethene	0.081	J	0.11	0.027	ug/m3			02/11/14 20:59	1
1,1,1-Trichloroethane	0.063	J	0.11	0.0098	ug/m3			02/11/14 20:59	1
Vinyl chloride	ND		0.051	0.010	ug/m3			02/11/14 20:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130		02/11/14 20:59	1
Toluene-d8 (Surr)	101		70 - 130		02/11/14 20:59	1
1,2-Dichloroethane-d4 (Surr)	94		70 - 130		02/11/14 20:59	1

Client Sample ID: IA-02-02102014

Lab Sample ID: 320-6042-2

Date Collected: 02/10/14 07:37

Matrix: Air

Date Received: 02/11/14 09:30

Sample Container: Summa Canister 6L

Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	0.0087	J	0.020	0.0050	ppb v/v			02/11/14 21:55	1
1,2-Dichlorobenzene	ND		0.050	0.010	ppb v/v			02/11/14 21:55	1
1,1-Dichloroethane	ND		0.020	0.0050	ppb v/v			02/11/14 21:55	1
1,1-Dichloroethene	ND		0.020	0.0050	ppb v/v			02/11/14 21:55	1
cis-1,2-Dichloroethene	ND		0.020	0.0023	ppb v/v			02/11/14 21:55	1
trans-1,2-Dichloroethene	ND		0.020	0.0050	ppb v/v			02/11/14 21:55	1
Tetrachloroethene	0.26		0.020	0.010	ppb v/v			02/11/14 21:55	1
Freon 113	0.10		0.030	0.0050	ppb v/v			02/11/14 21:55	1
Trichloroethene	0.65		0.020	0.0050	ppb v/v			02/11/14 21:55	1
1,1,1-Trichloroethane	0.023		0.020	0.0018	ppb v/v			02/11/14 21:55	1
Vinyl chloride	ND		0.020	0.0040	ppb v/v			02/11/14 21:55	1

TestAmerica Sacramento

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Client Sample ID: IA-02-02102014

Lab Sample ID: 320-6042-2

Date Collected: 02/10/14 07:37

Matrix: Air

Date Received: 02/11/14 09:30

Sample Container: Summa Canister 6L

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	0.040	J	0.092	0.023	ug/m3			02/11/14 21:55	1
1,2-Dichlorobenzene	ND		0.30	0.060	ug/m3			02/11/14 21:55	1
1,1-Dichloroethane	ND		0.081	0.020	ug/m3			02/11/14 21:55	1
1,1-Dichloroethene	ND		0.079	0.020	ug/m3			02/11/14 21:55	1
cis-1,2-Dichloroethene	ND		0.079	0.0091	ug/m3			02/11/14 21:55	1
trans-1,2-Dichloroethene	ND		0.079	0.020	ug/m3			02/11/14 21:55	1
Tetrachloroethene	1.8		0.14	0.068	ug/m3			02/11/14 21:55	1
Freon 113	0.78		0.23	0.038	ug/m3			02/11/14 21:55	1
Trichloroethene	3.5		0.11	0.027	ug/m3			02/11/14 21:55	1
1,1,1-Trichloroethane	0.12		0.11	0.0098	ug/m3			02/11/14 21:55	1
Vinyl chloride	ND		0.051	0.010	ug/m3			02/11/14 21:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130					02/11/14 21:55	1
Toluene-d8 (Surr)	101		70 - 130					02/11/14 21:55	1
1,2-Dichloroethane-d4 (Surr)	91		70 - 130					02/11/14 21:55	1

Client Sample ID: IA-02B-02102014

Lab Sample ID: 320-6042-3

Date Collected: 02/10/14 07:37

Matrix: Air

Date Received: 02/11/14 09:30

Sample Container: Summa Canister 6L

Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	0.0072	J	0.020	0.0050	ppb v/v			02/11/14 22:49	1
1,2-Dichlorobenzene	ND		0.050	0.010	ppb v/v			02/11/14 22:49	1
1,1-Dichloroethane	ND		0.020	0.0050	ppb v/v			02/11/14 22:49	1
1,1-Dichloroethene	ND		0.020	0.0050	ppb v/v			02/11/14 22:49	1
cis-1,2-Dichloroethene	ND		0.020	0.0023	ppb v/v			02/11/14 22:49	1
trans-1,2-Dichloroethene	ND		0.020	0.0050	ppb v/v			02/11/14 22:49	1
Tetrachloroethene	0.25		0.020	0.010	ppb v/v			02/11/14 22:49	1
Freon 113	0.10		0.030	0.0050	ppb v/v			02/11/14 22:49	1
Trichloroethene	0.62		0.020	0.0050	ppb v/v			02/11/14 22:49	1
1,1,1-Trichloroethane	0.024		0.020	0.0018	ppb v/v			02/11/14 22:49	1
Vinyl chloride	ND		0.020	0.0040	ppb v/v			02/11/14 22:49	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	0.033	J	0.092	0.023	ug/m3			02/11/14 22:49	1
1,2-Dichlorobenzene	ND		0.30	0.060	ug/m3			02/11/14 22:49	1
1,1-Dichloroethane	ND		0.081	0.020	ug/m3			02/11/14 22:49	1
1,1-Dichloroethene	ND		0.079	0.020	ug/m3			02/11/14 22:49	1
cis-1,2-Dichloroethene	ND		0.079	0.0091	ug/m3			02/11/14 22:49	1
trans-1,2-Dichloroethene	ND		0.079	0.020	ug/m3			02/11/14 22:49	1
Tetrachloroethene	1.7		0.14	0.068	ug/m3			02/11/14 22:49	1
Freon 113	0.78		0.23	0.038	ug/m3			02/11/14 22:49	1
Trichloroethene	3.3		0.11	0.027	ug/m3			02/11/14 22:49	1
1,1,1-Trichloroethane	0.13		0.11	0.0098	ug/m3			02/11/14 22:49	1
Vinyl chloride	ND		0.051	0.010	ug/m3			02/11/14 22:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130					02/11/14 22:49	1

TestAmerica Sacramento

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Client Sample ID: IA-02B-02102014

Lab Sample ID: 320-6042-3

Date Collected: 02/10/14 07:37

Matrix: Air

Date Received: 02/11/14 09:30

Sample Container: Summa Canister 6L

Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		70 - 130		02/11/14 22:49	1
1,2-Dichloroethane-d4 (Surr)	89		70 - 130		02/11/14 22:49	1

Client Sample ID: IA-05-02102014

Lab Sample ID: 320-6042-4

Date Collected: 02/10/14 07:47

Matrix: Air

Date Received: 02/11/14 09:30

Sample Container: Summa Canister 6L

Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	0.0082	J	0.020	0.0050	ppb v/v			02/11/14 23:46	1
1,2-Dichlorobenzene	ND		0.050	0.010	ppb v/v			02/11/14 23:46	1
1,1-Dichloroethane	ND		0.020	0.0050	ppb v/v			02/11/14 23:46	1
1,1-Dichloroethene	ND		0.020	0.0050	ppb v/v			02/11/14 23:46	1
cis-1,2-Dichloroethene	ND		0.020	0.0023	ppb v/v			02/11/14 23:46	1
trans-1,2-Dichloroethene	ND		0.020	0.0050	ppb v/v			02/11/14 23:46	1
Tetrachloroethene	0.14		0.020	0.010	ppb v/v			02/11/14 23:46	1
Freon 113	0.081		0.030	0.0050	ppb v/v			02/11/14 23:46	1
Trichloroethene	0.18		0.020	0.0050	ppb v/v			02/11/14 23:46	1
1,1,1-Trichloroethane	0.012	J	0.020	0.0018	ppb v/v			02/11/14 23:46	1
Vinyl chloride	ND		0.020	0.0040	ppb v/v			02/11/14 23:46	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	0.038	J	0.092	0.023	ug/m3			02/11/14 23:46	1
1,2-Dichlorobenzene	ND		0.30	0.060	ug/m3			02/11/14 23:46	1
1,1-Dichloroethane	ND		0.081	0.020	ug/m3			02/11/14 23:46	1
1,1-Dichloroethene	ND		0.079	0.020	ug/m3			02/11/14 23:46	1
cis-1,2-Dichloroethene	ND		0.079	0.0091	ug/m3			02/11/14 23:46	1
trans-1,2-Dichloroethene	ND		0.079	0.020	ug/m3			02/11/14 23:46	1
Tetrachloroethene	0.92		0.14	0.068	ug/m3			02/11/14 23:46	1
Freon 113	0.62		0.23	0.038	ug/m3			02/11/14 23:46	1
Trichloroethene	0.97		0.11	0.027	ug/m3			02/11/14 23:46	1
1,1,1-Trichloroethane	0.063	J	0.11	0.0098	ug/m3			02/11/14 23:46	1
Vinyl chloride	ND		0.051	0.010	ug/m3			02/11/14 23:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130					02/11/14 23:46	1
Toluene-d8 (Surr)	103		70 - 130					02/11/14 23:46	1
1,2-Dichloroethane-d4 (Surr)	90		70 - 130					02/11/14 23:46	1

Client Sample ID: IA-06-02102014

Lab Sample ID: 320-6042-5

Date Collected: 02/10/14 07:52

Matrix: Air

Date Received: 02/11/14 09:30

Sample Container: Summa Canister 6L

Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	0.0074	J	0.020	0.0050	ppb v/v			02/12/14 00:41	1
1,2-Dichlorobenzene	ND		0.050	0.010	ppb v/v			02/12/14 00:41	1

TestAmerica Sacramento

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Client Sample ID: IA-06-02102014

Lab Sample ID: 320-6042-5

Date Collected: 02/10/14 07:52

Matrix: Air

Date Received: 02/11/14 09:30

Sample Container: Summa Canister 6L

Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	ND		0.020	0.0050	ppb v/v			02/12/14 00:41	1
1,1-Dichloroethene	ND		0.020	0.0050	ppb v/v			02/12/14 00:41	1
cis-1,2-Dichloroethene	ND		0.020	0.0023	ppb v/v			02/12/14 00:41	1
trans-1,2-Dichloroethene	ND		0.020	0.0050	ppb v/v			02/12/14 00:41	1
Tetrachloroethene	0.14		0.020	0.010	ppb v/v			02/12/14 00:41	1
Freon 113	0.081		0.030	0.0050	ppb v/v			02/12/14 00:41	1
Trichloroethene	0.18		0.020	0.0050	ppb v/v			02/12/14 00:41	1
1,1,1-Trichloroethane	0.012	J	0.020	0.0018	ppb v/v			02/12/14 00:41	1
Vinyl chloride	ND		0.020	0.0040	ppb v/v			02/12/14 00:41	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	0.034	J	0.092	0.023	ug/m3			02/12/14 00:41	1
1,2-Dichlorobenzene	ND		0.30	0.060	ug/m3			02/12/14 00:41	1
1,1-Dichloroethane	ND		0.081	0.020	ug/m3			02/12/14 00:41	1
1,1-Dichloroethene	ND		0.079	0.020	ug/m3			02/12/14 00:41	1
cis-1,2-Dichloroethene	ND		0.079	0.0091	ug/m3			02/12/14 00:41	1
trans-1,2-Dichloroethene	ND		0.079	0.020	ug/m3			02/12/14 00:41	1
Tetrachloroethene	0.96		0.14	0.068	ug/m3			02/12/14 00:41	1
Freon 113	0.62		0.23	0.038	ug/m3			02/12/14 00:41	1
Trichloroethene	0.98		0.11	0.027	ug/m3			02/12/14 00:41	1
1,1,1-Trichloroethane	0.068	J	0.11	0.0098	ug/m3			02/12/14 00:41	1
Vinyl chloride	ND		0.051	0.010	ug/m3			02/12/14 00:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		70 - 130		02/12/14 00:41	1
Toluene-d8 (Surr)	100		70 - 130		02/12/14 00:41	1
1,2-Dichloroethane-d4 (Surr)	89		70 - 130		02/12/14 00:41	1

Client Sample ID: IA-07-02102014

Lab Sample ID: 320-6042-6

Date Collected: 02/10/14 07:44

Matrix: Air

Date Received: 02/11/14 09:30

Sample Container: Summa Canister 6L

Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	0.0065	J	0.020	0.0050	ppb v/v			02/12/14 01:36	1
1,2-Dichlorobenzene	ND		0.050	0.010	ppb v/v			02/12/14 01:36	1
1,1-Dichloroethane	ND		0.020	0.0050	ppb v/v			02/12/14 01:36	1
1,1-Dichloroethene	ND		0.020	0.0050	ppb v/v			02/12/14 01:36	1
cis-1,2-Dichloroethene	ND		0.020	0.0023	ppb v/v			02/12/14 01:36	1
trans-1,2-Dichloroethene	ND		0.020	0.0050	ppb v/v			02/12/14 01:36	1
Tetrachloroethene	0.11		0.020	0.010	ppb v/v			02/12/14 01:36	1
Freon 113	0.065		0.030	0.0050	ppb v/v			02/12/14 01:36	1
Trichloroethene	0.17		0.020	0.0050	ppb v/v			02/12/14 01:36	1
1,1,1-Trichloroethane	0.016	J	0.020	0.0018	ppb v/v			02/12/14 01:36	1
Vinyl chloride	ND		0.020	0.0040	ppb v/v			02/12/14 01:36	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	0.030	J	0.092	0.023	ug/m3			02/12/14 01:36	1
1,2-Dichlorobenzene	ND		0.30	0.060	ug/m3			02/12/14 01:36	1

TestAmerica Sacramento

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Client Sample ID: IA-07-02102014

Lab Sample ID: 320-6042-6

Date Collected: 02/10/14 07:44

Matrix: Air

Date Received: 02/11/14 09:30

Sample Container: Summa Canister 6L

Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	ND		0.081	0.020	ug/m3			02/12/14 01:36	1
1,1-Dichloroethene	ND		0.079	0.020	ug/m3			02/12/14 01:36	1
cis-1,2-Dichloroethene	ND		0.079	0.0091	ug/m3			02/12/14 01:36	1
trans-1,2-Dichloroethene	ND		0.079	0.020	ug/m3			02/12/14 01:36	1
Tetrachloroethene	0.72		0.14	0.068	ug/m3			02/12/14 01:36	1
Freon 113	0.50		0.23	0.038	ug/m3			02/12/14 01:36	1
Trichloroethene	0.91		0.11	0.027	ug/m3			02/12/14 01:36	1
1,1,1-Trichloroethane	0.085 J		0.11	0.0098	ug/m3			02/12/14 01:36	1
Vinyl chloride	ND		0.051	0.010	ug/m3			02/12/14 01:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130		02/12/14 01:36	1
Toluene-d8 (Surr)	99		70 - 130		02/12/14 01:36	1
1,2-Dichloroethane-d4 (Surr)	89		70 - 130		02/12/14 01:36	1

TestAmerica Sacramento

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

Matrix: Air

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	TOL	12DCE
		(70-130)	(70-130)	(70-130)
320-6042-1	AMBIENT-02102014	106	101	94
320-6042-2	IA-02-02102014	105	101	91
320-6042-3	IA-02B-02102014	106	100	89
320-6042-4	IA-05-02102014	102	103	90
320-6042-5	IA-06-02102014	101	100	89
320-6042-6	IA-07-02102014	102	99	89
LCS 320-36066/3	Lab Control Sample	113	101	88
LCSD 320-36066/4	Lab Control Sample Dup	112	102	87
MB 320-36066/14	Method Blank	90	98	93

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

12DCE = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

Lab Sample ID: MB 320-36066/14

Matrix: Air

Analysis Batch: 36066

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	ND		0.020	0.0050	ppb v/v			02/11/14 20:01	1
1,2-Dichlorobenzene	ND		0.050	0.010	ppb v/v			02/11/14 20:01	1
1,1-Dichloroethane	ND		0.020	0.0050	ppb v/v			02/11/14 20:01	1
1,1-Dichloroethene	ND		0.020	0.0050	ppb v/v			02/11/14 20:01	1
cis-1,2-Dichloroethene	ND		0.020	0.0023	ppb v/v			02/11/14 20:01	1
trans-1,2-Dichloroethene	ND		0.020	0.0050	ppb v/v			02/11/14 20:01	1
Tetrachloroethene	ND		0.020	0.010	ppb v/v			02/11/14 20:01	1
Freon 113	ND		0.030	0.0050	ppb v/v			02/11/14 20:01	1
Trichloroethene	ND		0.020	0.0050	ppb v/v			02/11/14 20:01	1
1,1,1-Trichloroethane	ND		0.020	0.0018	ppb v/v			02/11/14 20:01	1
Vinyl chloride	ND		0.020	0.0040	ppb v/v			02/11/14 20:01	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	ND		0.092	0.023	ug/m3			02/11/14 20:01	1
1,2-Dichlorobenzene	ND		0.30	0.060	ug/m3			02/11/14 20:01	1
1,1-Dichloroethane	ND		0.081	0.020	ug/m3			02/11/14 20:01	1
1,1-Dichloroethene	ND		0.079	0.020	ug/m3			02/11/14 20:01	1
cis-1,2-Dichloroethene	ND		0.079	0.0091	ug/m3			02/11/14 20:01	1
trans-1,2-Dichloroethene	ND		0.079	0.020	ug/m3			02/11/14 20:01	1
Tetrachloroethene	ND		0.14	0.068	ug/m3			02/11/14 20:01	1
Freon 113	ND		0.23	0.038	ug/m3			02/11/14 20:01	1
Trichloroethene	ND		0.11	0.027	ug/m3			02/11/14 20:01	1
1,1,1-Trichloroethane	ND		0.11	0.0098	ug/m3			02/11/14 20:01	1
Vinyl chloride	ND		0.051	0.010	ug/m3			02/11/14 20:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		70 - 130		02/11/14 20:01	1
Toluene-d8 (Surr)	98		70 - 130		02/11/14 20:01	1
1,2-Dichloroethane-d4 (Surr)	93		70 - 130		02/11/14 20:01	1

Lab Sample ID: LCS 320-36066/3

Matrix: Air

Analysis Batch: 36066

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chlorobenzene	1.24	1.21		ppb v/v		98	70 - 130
1,2-Dichlorobenzene	1.20	1.39		ppb v/v		115	70 - 130
1,1-Dichloroethane	1.24	1.29		ppb v/v		104	70 - 130
1,1-Dichloroethene	1.30	1.25		ppb v/v		97	70 - 130
cis-1,2-Dichloroethene	1.25	1.48		ppb v/v		119	70 - 130
trans-1,2-Dichloroethene	1.22	1.36		ppb v/v		111	70 - 130
Tetrachloroethene	1.15	1.15		ppb v/v		100	70 - 130
Freon 113	1.26	1.07		ppb v/v		85	70 - 130
Trichloroethene	1.21	1.22		ppb v/v		101	70 - 130
1,1,1-Trichloroethane	1.21	1.18		ppb v/v		97	70 - 130
Vinyl chloride	1.18	1.14		ppb v/v		97	70 - 130

TestAmerica Sacramento

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

(Continued)

Lab Sample ID: LCS 320-36066/3

Matrix: Air

Analysis Batch: 36066

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chlorobenzene	5.7	5.56		ug/m3		98	70 - 130
1,2-Dichlorobenzene	7.2	8.33		ug/m3		115	70 - 130
1,1-Dichloroethane	5.0	5.22		ug/m3		104	70 - 130
1,1-Dichloroethene	5.1	4.97		ug/m3		97	70 - 130
cis-1,2-Dichloroethene	4.9	5.88		ug/m3		119	70 - 130
trans-1,2-Dichloroethene	4.9	5.39		ug/m3		111	70 - 130
Tetrachloroethene	7.8	7.78		ug/m3		100	70 - 130
Freon 113	9.7	8.17		ug/m3		85	70 - 130
Trichloroethene	6.5	6.57		ug/m3		101	70 - 130
1,1,1-Trichloroethane	6.6	6.41		ug/m3		97	70 - 130
Vinyl chloride	3.0	2.92		ug/m3		97	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
Toluene-d8 (Surr)	101		70 - 130
1,2-Dichloroethane-d4 (Surr)	88		70 - 130

Lab Sample ID: LCSD 320-36066/4

Matrix: Air

Analysis Batch: 36066

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chlorobenzene	1.24	1.20		ppb v/v		97	70 - 130	0	25
1,2-Dichlorobenzene	1.20	1.38		ppb v/v		115	70 - 130	0	25
1,1-Dichloroethane	1.24	1.28		ppb v/v		104	70 - 130	0	25
1,1-Dichloroethene	1.30	1.29		ppb v/v		100	70 - 130	3	25
cis-1,2-Dichloroethene	1.25	1.52		ppb v/v		121	70 - 130	2	25
trans-1,2-Dichloroethene	1.22	1.38		ppb v/v		113	70 - 130	2	25
Tetrachloroethene	1.15	1.14		ppb v/v		99	70 - 130	1	25
Freon 113	1.26	1.08		ppb v/v		85	70 - 130	1	25
Trichloroethene	1.21	1.23		ppb v/v		101	70 - 130	0	25
1,1,1-Trichloroethane	1.21	1.19		ppb v/v		99	70 - 130	2	25
Vinyl chloride	1.18	1.17		ppb v/v		100	70 - 130	2	25
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chlorobenzene	5.7	5.54		ug/m3		97	70 - 130	0	25
1,2-Dichlorobenzene	7.2	8.31		ug/m3		115	70 - 130	0	25
1,1-Dichloroethane	5.0	5.20		ug/m3		104	70 - 130	0	25
1,1-Dichloroethene	5.1	5.12		ug/m3		100	70 - 130	3	25
cis-1,2-Dichloroethene	4.9	6.01		ug/m3		121	70 - 130	2	25
trans-1,2-Dichloroethene	4.9	5.49		ug/m3		113	70 - 130	2	25
Tetrachloroethene	7.8	7.73		ug/m3		99	70 - 130	1	25
Freon 113	9.7	8.24		ug/m3		85	70 - 130	1	25
Trichloroethene	6.5	6.59		ug/m3		101	70 - 130	0	25
1,1,1-Trichloroethane	6.6	6.52		ug/m3		99	70 - 130	2	25
Vinyl chloride	3.0	3.00		ug/m3		100	70 - 130	2	25

TestAmerica Sacramento

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS) (Continued)

Lab Sample ID: LCSD 320-36066/4

Matrix: Air

Analysis Batch: 36066

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Surrogate	LCSD	LCSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	112		70 - 130
Toluene-d8 (Surr)	102		70 - 130
1,2-Dichloroethane-d4 (Surr)	87		70 - 130

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Air - GC/MS VOA

Analysis Batch: 36066

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-6042-1	AMBIENT-02102014	Total/NA	Air	TO-15 SIM	
320-6042-2	IA-02-02102014	Total/NA	Air	TO-15 SIM	
320-6042-3	IA-02B-02102014	Total/NA	Air	TO-15 SIM	
320-6042-4	IA-05-02102014	Total/NA	Air	TO-15 SIM	
320-6042-5	IA-06-02102014	Total/NA	Air	TO-15 SIM	
320-6042-6	IA-07-02102014	Total/NA	Air	TO-15 SIM	
LCS 320-36066/3	Lab Control Sample	Total/NA	Air	TO-15 SIM	
LCSD 320-36066/4	Lab Control Sample Dup	Total/NA	Air	TO-15 SIM	
MB 320-36066/14	Method Blank	Total/NA	Air	TO-15 SIM	

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Client Sample ID: AMBIENT-02102014

Date Collected: 02/10/14 07:15

Date Received: 02/11/14 09:30

Lab Sample ID: 320-6042-1

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 SIM		1	890 mL	500 mL	36066	02/11/14 20:59	TAD	TAL SAC

Client Sample ID: IA-02-02102014

Date Collected: 02/10/14 07:37

Date Received: 02/11/14 09:30

Lab Sample ID: 320-6042-2

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 SIM		1	975 mL	500 mL	36066	02/11/14 21:55	TAD	TAL SAC

Client Sample ID: IA-02B-02102014

Date Collected: 02/10/14 07:37

Date Received: 02/11/14 09:30

Lab Sample ID: 320-6042-3

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 SIM		1	875 mL	500 mL	36066	02/11/14 22:49	TAD	TAL SAC

Client Sample ID: IA-05-02102014

Date Collected: 02/10/14 07:47

Date Received: 02/11/14 09:30

Lab Sample ID: 320-6042-4

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 SIM		1	980 mL	500 mL	36066	02/11/14 23:46	TAD	TAL SAC

Client Sample ID: IA-06-02102014

Date Collected: 02/10/14 07:52

Date Received: 02/11/14 09:30

Lab Sample ID: 320-6042-5

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 SIM		1	865 mL	500 mL	36066	02/12/14 00:41	TAD	TAL SAC

Client Sample ID: IA-07-02102014

Date Collected: 02/10/14 07:44

Date Received: 02/11/14 09:30

Lab Sample ID: 320-6042-6

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 SIM		1	795 mL	500 mL	36066	02/12/14 01:36	TAD	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

TestAmerica Sacramento

Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	03-31-14
Alaska (UST)	State Program	10	UST-055	02-28-14 *
Arizona	State Program	9	AZ0708	08-11-14
Arkansas DEQ	State Program	6	88-0691	06-17-14
California	State Program	9	2897	01-31-15
Colorado	State Program	8	N/A	08-31-14
Connecticut	State Program	1	PH-0691	06-30-15
Florida	NELAP	4	E87570	06-30-14
Guam	State Program	9	N/A	08-31-14
Hawaii	State Program	9	N/A	01-29-15
Illinois	NELAP	5	200060	03-17-15
Kansas	NELAP	7	E-10375	10-31-14
Louisiana	NELAP	6	30612	06-30-14
Michigan	State Program	5	9947	02-28-14 *
Nebraska	State Program	7	NE-OS-22-13	02-28-14 *
Nevada	State Program	9	CA44	07-31-14
New Jersey	NELAP	2	CA005	06-30-14
New York	NELAP	2	11666	03-31-14
Northern Mariana Islands	State Program	9	MP0007	02-28-14 *
Oregon	NELAP	10	CA200005	01-29-15
Pennsylvania	NELAP	3	68-01272	03-31-14
South Carolina	State Program	4	87014	06-30-14
Texas	NELAP	6	T104704399-08-TX	05-31-14
US Fish & Wildlife	Federal		LE148388-0	12-31-14
USDA	Federal		P330-11-00436	12-30-14
USEPA UCMR	Federal	1	CA00044	11-06-14
Utah	NELAP	8	QUAN1	02-28-15
Washington	State Program	10	C581	05-05-14
Wyoming	State Program	8	8TMS-Q	02-28-14 *

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Sacramento

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Method	Method Description	Protocol	Laboratory
TO-15 SIM	Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)	EPA-21	TAL SAC

Protocol References:

EPA-21 = "Compendium Of Methods For The Determination Of Toxic Organic Compounds In Ambient Air", Second Edition, EPA/625/R-96/010B, January 1999

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: 1160 Kern Ave

TestAmerica Job ID: 320-6042-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-6042-1	AMBIENT-02102014	Air	02/10/14 07:15	02/11/14 09:30
320-6042-2	IA-02-02102014	Air	02/10/14 07:37	02/11/14 09:30
320-6042-3	IA-02B-02102014	Air	02/10/14 07:37	02/11/14 09:30
320-6042-4	IA-05-02102014	Air	02/10/14 07:47	02/11/14 09:30
320-6042-5	IA-06-02102014	Air	02/10/14 07:52	02/11/14 09:30
320-6042-6	IA-07-02102014	Air	02/10/14 07:44	02/11/14 09:30

TestAmerica Sacramento

880 Riverside Parkway

West Sacramento, CA 95605

phone 916-373-5600 fax 916-372-1059

Canister Samples Chain of Custody Record


TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information		Project Manager: Pete Scaramella		Samples Collected By: <u>M. Zlotoff</u>		1 of 1 COCs	
Company: Haley & Aldrich		Phone: 510-879-4559					
Address: 1956 Webster St., Suite 450		Email: PSCARAMELLA@haleyaldrich.com					
City/State/Zip: Oakland, CA, 94612							
Phone: 510-879-4559		Site Contact: Pete Scaramella					
FAX: 510-251-1304		TA Contact: Beth Riley					
Project Name: 1160 Kern Ave.		Analysis Turnaround Time					
Site: 1160 Kern Ave., Sunnyvale, CA		Standard (Specify)					
PO #: 39800-001		Rush (Specify) <u>48 hours</u>					

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 SIM *	MA-APH	EPA 3C	EPA 25C / 25.3	ASTM D-1946 / 1945 / 3588	EPA 15/16	TO-3	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
AMBIENT-02102014	02/10/2014	0715	1508	-30.0	-2.5	7300	34000573	X										X			
IA-02-02102014	02/10/2014	0737	1521	-29.5	-3.5	7190	34000028	X									X				
IA-02B-02102014	02/10/2014	0737	1520	-30	-2.0	7370	34000225	X									X				
IA-05-02102014	02/10/2014	0747	1523	-30	-4.0	7261	34000338	X									X				
IA-06-02102014	02/10/2014	0752	1518	-30	-3.0	7303	34000533	X									X				
IA-07-02102014	02/10/2014	0744	1543	-30	-5.5	7276	34002025	X									X				

Temperature (Fahrenheit)			
	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)			
	Interior	Ambient	
Start			
Stop			



320-6042 Chain of Custody

Special Instructions/QC Requirements & Comments:
 * Report only TCE, PCE, cis-1,2-DCE, trans-1,2-DCE, Vinyl Chloride, 1,1-DCA, 1,1-DCE, chlorobenzene, 1,2-dichlorobenzene, Freon 113, and 1,1,1-TCA

48-hr TAT

Samples Shipped by: <u>M. Zlotoff</u>	Date/Time: <u>02/10/2014</u>	Samples Received by: <u>Tom Nelson</u> <u>2-11-14</u> <u>930</u> FedEx
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name:

Opened by:

Condition:



JOB # 320-6042
Sample # 1

Client/Project:		VFR ID:		
Canister Serial #:	34000573	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min	
Cleaning Job:		Flow:		mL/min
Client ID:		Initials:		
Site Location:				

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING		PRESS.	DATE	INITIALS
INITIAL VACUUM CHECK (INCHES Hg)		29.8	01/14/14	JMT
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)		13.74	02/11/14	AO
FINAL PRESSURE (PSIA)		24.50	02/11/14	AO
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He		SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:	
Initial Canister Dilution Factor =		1.78		

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
					#DIV/0!
					#DIV/0!
					#DIV/0!

Analytical Dilution Factors										
		Date	Instr.	File #						
		2/11/2014	MS1							
Canister DF =	1.78	X	Load DF =	0.5617978	X	Bag DF =	1	=	FINAL DF	1
			LVf (mLs)	500			BVf (mLs)			
			LVi (mLs)	890			Bvi (mLs)			
		Date	Instr.	File #						
Canister DF =		X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)				BVf (mLs)			
			LVi (mLs)				Bvi (mLs)			
		Date	Instr.	File #						
Canister DF =		X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)				BVf (mLs)			
			LVi (mLs)				Bvi (mLs)			

JOB # 320-6042
Sample # 2

Client/Project:		VFR ID:		
Canister Serial #:	34000028	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min	
Cleaning Job:		Flow:		mL/min
Client ID:		Initials:		
Site Location:				

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING		PRESS.	DATE	INITIALS
INITIAL VACUUM CHECK (INCHES Hg)		29.8	01/14/14	JMT
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)		12.67	02/11/14	AO
FINAL PRESSURE (PSIA)		24.71	02/11/14	AO
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He		SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:	
Initial Canister Dilution Factor =		1.95		

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
					#DIV/0!
					#DIV/0!
					#DIV/0!

Analytical Dilution Factors										
		Date	Instr.	File #						
		2/11/2014	MS1							
Canister DF =	1.95	X	Load DF =	0.5128205	X	Bag DF =	1	=	FINAL DF	1
			LVf (mLs)	500			BVf (mLs)			
			LVi (mLs)	975			Bvi (mLs)			
		Date	Instr.	File #						
Canister DF =		X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)				BVf (mLs)			
			LVi (mLs)				Bvi (mLs)			
		Date	Instr.	File #						
Canister DF =		X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)				BVf (mLs)			
			LVi (mLs)				Bvi (mLs)			

JOB # 320-6042
Sample # 3

Client/Project:		VFR ID:		
Canister Serial #:	34000225	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min	
Cleaning Job:		Flow:		mL/min
Client ID:		Initials:		
Site Location:				

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING		PRESS.	DATE	INITIALS
INITIAL VACUUM CHECK (INCHES Hg)		29.8	01/14/14	JMT
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)		13.83	02/11/14	AO
FINAL PRESSURE (PSIA)		24.15	02/11/14	AO
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He		SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:	
Initial Canister Dilution Factor =		1.75		

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
					#DIV/0!
					#DIV/0!
					#DIV/0!

Analytical Dilution Factors										
		Date	Instr.	File #						
		2/11/2014	MS1							
Canister DF =	1.75	X	Load DF =	0.5714286	X	Bag DF =	1	=	FINAL DF	1
			LVf (mLs)	500			BVf (mLs)			
			LVi (mLs)	875			Bvi (mLs)			
		Date	Instr.	File #						
Canister DF =		X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)				BVf (mLs)			
			LVi (mLs)				Bvi (mLs)			
		Date	Instr.	File #						
Canister DF =		X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)				BVf (mLs)			
			LVi (mLs)				Bvi (mLs)			

JOB # 320-6042
Sample # 4

Client/Project:		VFR ID:		
Canister Serial #:	34000338	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min	
Cleaning Job:		Flow:		mL/min
Client ID:		Initials:		
Site Location:				

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING		PRESS.	DATE	INITIALS
INITIAL VACUUM CHECK (INCHES Hg)		29.8	01/14/14	JMT
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)		12.54	02/11/14	AO
FINAL PRESSURE (PSIA)		24.56	02/11/14	AO
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He		SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:	
Initial Canister Dilution Factor =		1.96		

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
					#DIV/0!
					#DIV/0!
					#DIV/0!

Analytical Dilution Factors										
		Date	Instr.	File #						
		2/11/2014	MS1							
Canister DF =	1.96	X	Load DF =	0.5102041	X	Bag DF =	1	=	FINAL DF	1
			LVf (mLs)	500			BVf (mLs)			
			LVi (mLs)	980			Bvi (mLs)			
		Date	Instr.	File #						
Canister DF =		X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)				BVf (mLs)			
			LVi (mLs)				Bvi (mLs)			
		Date	Instr.	File #						
Canister DF =		X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)				BVf (mLs)			
			LVi (mLs)				Bvi (mLs)			

JOB # 320-6042
Sample # 5

Client/Project:		VFR ID:		
Canister Serial #:	34000533	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min	
Cleaning Job:		Flow:		mL/min
Client ID:		Initials:		
Site Location:				

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING		PRESS.	DATE	INITIALS
INITIAL VACUUM CHECK (INCHES Hg)		29.8	01/14/14	JMT
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)		14.07	02/11/14	AO
FINAL PRESSURE (PSIA)		24.40	02/11/14	AO
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He		SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:	
Initial Canister Dilution Factor =		1.73		

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
					#DIV/0!
					#DIV/0!
					#DIV/0!

Analytical Dilution Factors										
		Date	Instr.	File #						
		2/11/2014	MS1							
Canister DF =	1.73	X	Load DF =	0.5780347	X	Bag DF =	1	=	FINAL DF	1
			LVf (mLs)	500			BVf (mLs)			
			LVi (mLs)	865			Bvi (mLs)			
		Date	Instr.	File #						
Canister DF =		X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)				BVf (mLs)			
			LVi (mLs)				Bvi (mLs)			
		Date	Instr.	File #						
Canister DF =		X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)				BVf (mLs)			
			LVi (mLs)				Bvi (mLs)			

JOB # 320-6042
Sample # 6

Client/Project:		VFR ID:		
Canister Serial #:	34002025	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min	
Cleaning Job:		Flow:		mL/min
Client ID:		Initials:		
Site Location:				

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING		PRESS.	DATE	INITIALS
INITIAL VACUUM CHECK (INCHES Hg)		29.8	01/14/14	JMT
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)		15.46	02/11/14	AO
FINAL PRESSURE (PSIA)		24.65	02/11/14	AO
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He		SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:	
Initial Canister Dilution Factor =		1.59		

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
					#DIV/0!
					#DIV/0!
					#DIV/0!

Analytical Dilution Factors										
		Date	Instr.	File #						
		2/11/2014	MS1							
Canister DF =	1.59	X	Load DF =	0.6289308	X	Bag DF =	1	=	FINAL DF	1
			LVf (mLs)	500			BVf (mLs)			
			LVi (mLs)	795			Bvi (mLs)			
		Date	Instr.	File #						
Canister DF =		X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)				BVf (mLs)			
			LVi (mLs)				Bvi (mLs)			
		Date	Instr.	File #						
Canister DF =		X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)				BVf (mLs)			
			LVi (mLs)				Bvi (mLs)			

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 320-6042-1

Login Number: 6042

List Source: TestAmerica Sacramento

List Number: 1

Creator: Nelson, Kym D

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-5891-1
 SDG No.: _____
 Client Sample ID: 34000162 Lab Sample ID: 320-5891-1
 Matrix: Air Lab File ID: MS1013007.d
 Analysis Method: TO-15 SIM Date Collected: 01/27/2014 00:00
 Sample wt/vol: 1000 (mL) Date Analyzed: 01/30/2014 21:06
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 35214 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
108-90-7	Chlorobenzene	ND		0.020
156-59-2	cis-1,2-Dichloroethene	ND		0.020
95-50-1	1,2-Dichlorobenzene	ND		0.050
75-34-3	1,1-Dichloroethane	ND		0.020
75-35-4	1,1-Dichloroethene	ND		0.020
127-18-4	Tetrachloroethene	ND		0.020
156-60-5	trans-1,2-Dichloroethene	ND		0.020
71-55-6	1,1,1-Trichloroethane	ND		0.020
79-01-6	Trichloroethene	ND		0.020
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030
75-01-4	Vinyl chloride	ND		0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	95		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	97		70-130
2037-26-5	Toluene-d8 (Surr)	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\MS1013007.d
 Lims ID: 320-5891-A-1 Lab Sample ID: 320-5891-1
 Client ID: 34000162
 Sample Type: Client
 Inject. Date: 30-Jan-2014 21:06:30 ALS Bottle#: 5 Worklist Smp#: 7
 Purge Vol: 250.000 mL Dil. Factor: 1.0000
 Sample Info: 320-5891-1
 Misc. Info.: 1000mL, Concert -34000162
 Operator ID: AJS Instrument ID: ATMS1
 Method: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\TO-15 SIM SIM.m
 Limit Group: MSA - TO-15_SIM_ICAL
 Last Update: 31-Jan-2014 10:29:41 Calib Date: 14-Jan-2014 05:56:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\SACCHROM\ChromData\ATMS1\20140113-9866.b\MS1011314.d
 Column 1 : Det: MS SCAN
 Process Host: XAWRK031

First Level Reviewer: shardaa

Date: 31-Jan-2014 09:44:45

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.980	11.984	-0.004	8	14916	1.94	
* 2 1,4-Difluorobenzene	114	14.118	14.119	-0.001	1	50821	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.772	20.772	0.0	1	44302	2.00	
\$ 4 1,2-Dichloroethane-d4 (Surr)	65	13.168	13.173	-0.005	100	13199	1.89	
\$ 5 Toluene-d8 (Surr)	100	17.510	17.510	0.0	1	27921	1.99	
\$ 6 4-Bromofluorobenzene (Surr)	95	23.319	23.319	0.0	14	22895	1.90	

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\MS1013007.d

Injection Date: 30-Jan-2014 21:06:30

Instrument ID: ATMS1

Lims ID: 320-5891-A-1

Lab Sample ID: 320-5891-1

Client ID: 34000162

Operator ID: AJS

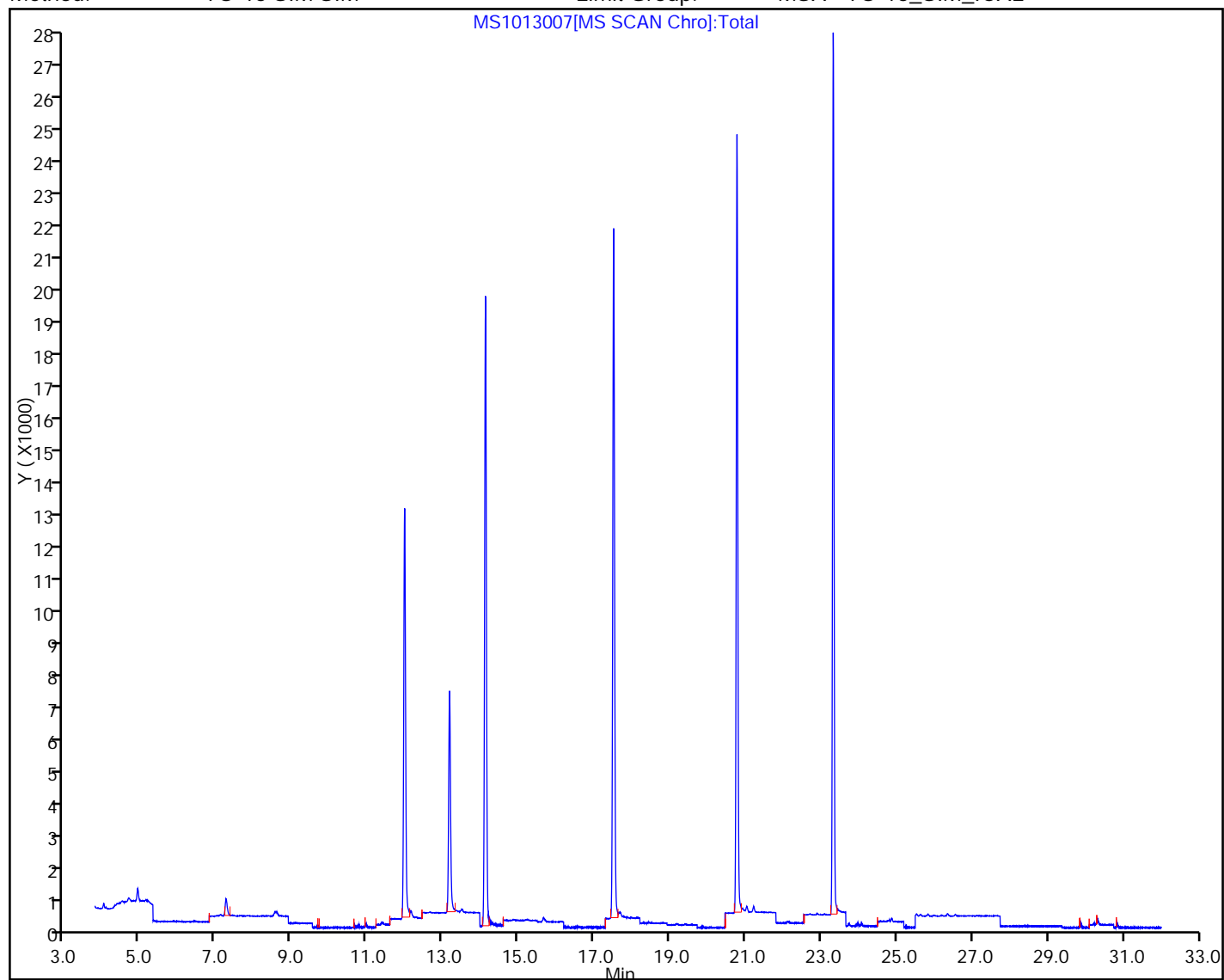
ALS Bottle#: 5 Worklist Smp#: 7

Purge Vol: 250.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO-15_SIM_ICAL



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-5891-1
 SDG No.: _____
 Client Sample ID: 34000028 Lab Sample ID: 320-5891-2
 Matrix: Air Lab File ID: MS1013008.d
 Analysis Method: TO-15 SIM Date Collected: 01/27/2014 00:00
 Sample wt/vol: 1000 (mL) Date Analyzed: 01/30/2014 22:01
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 35214 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
108-90-7	Chlorobenzene	ND		0.020
156-59-2	cis-1,2-Dichloroethene	ND		0.020
95-50-1	1,2-Dichlorobenzene	ND		0.050
75-34-3	1,1-Dichloroethane	ND		0.020
75-35-4	1,1-Dichloroethene	ND		0.020
127-18-4	Tetrachloroethene	ND		0.020
156-60-5	trans-1,2-Dichloroethene	ND		0.020
71-55-6	1,1,1-Trichloroethane	ND		0.020
79-01-6	Trichloroethene	ND		0.020
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030
75-01-4	Vinyl chloride	ND		0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	93		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	98		70-130
2037-26-5	Toluene-d8 (Surr)	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\MS1013008.d
 Lims ID: 320-5891-A-2 Lab Sample ID: 320-5891-2
 Client ID: 34000028
 Sample Type: Client
 Inject. Date: 30-Jan-2014 22:01:30 ALS Bottle#: 6 Worklist Smp#: 8
 Purge Vol: 250.000 mL Dil. Factor: 1.0000
 Sample Info: 320-5891-2
 Misc. Info.: 1000mL, Concert -34000028
 Operator ID: AJS Instrument ID: ATMS1
 Method: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\TO-15 SIM SIM.m
 Limit Group: MSA - TO-15_SIM_ICAL
 Last Update: 31-Jan-2014 10:29:41 Calib Date: 14-Jan-2014 05:56:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\SACCHROM\ChromData\ATMS1\20140113-9866.b\MS1011314.d
 Column 1 : Det: MS SCAN
 Process Host: XAWRK031

First Level Reviewer: shardaa

Date: 31-Jan-2014 10:24:25

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.980	11.984	-0.004	8	15162	1.94	
* 2 1,4-Difluorobenzene	114	14.116	14.119	-0.003	1	51455	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.773	20.772	0.001	1	44724	2.00	
\$ 4 1,2-Dichloroethane-d4 (Surr)	65	13.168	13.173	-0.005	100	13394	1.89	
\$ 5 Toluene-d8 (Surr)	100	17.506	17.510	-0.004	1	28206	1.99	
\$ 6 4-Bromofluorobenzene (Surr)	95	23.317	23.319	-0.002	14	22556	1.86	

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\MS1013008.d

Injection Date: 30-Jan-2014 22:01:30

Instrument ID: ATMS1

Lims ID: 320-5891-A-2

Lab Sample ID: 320-5891-2

Client ID: 34000028

Operator ID: AJS

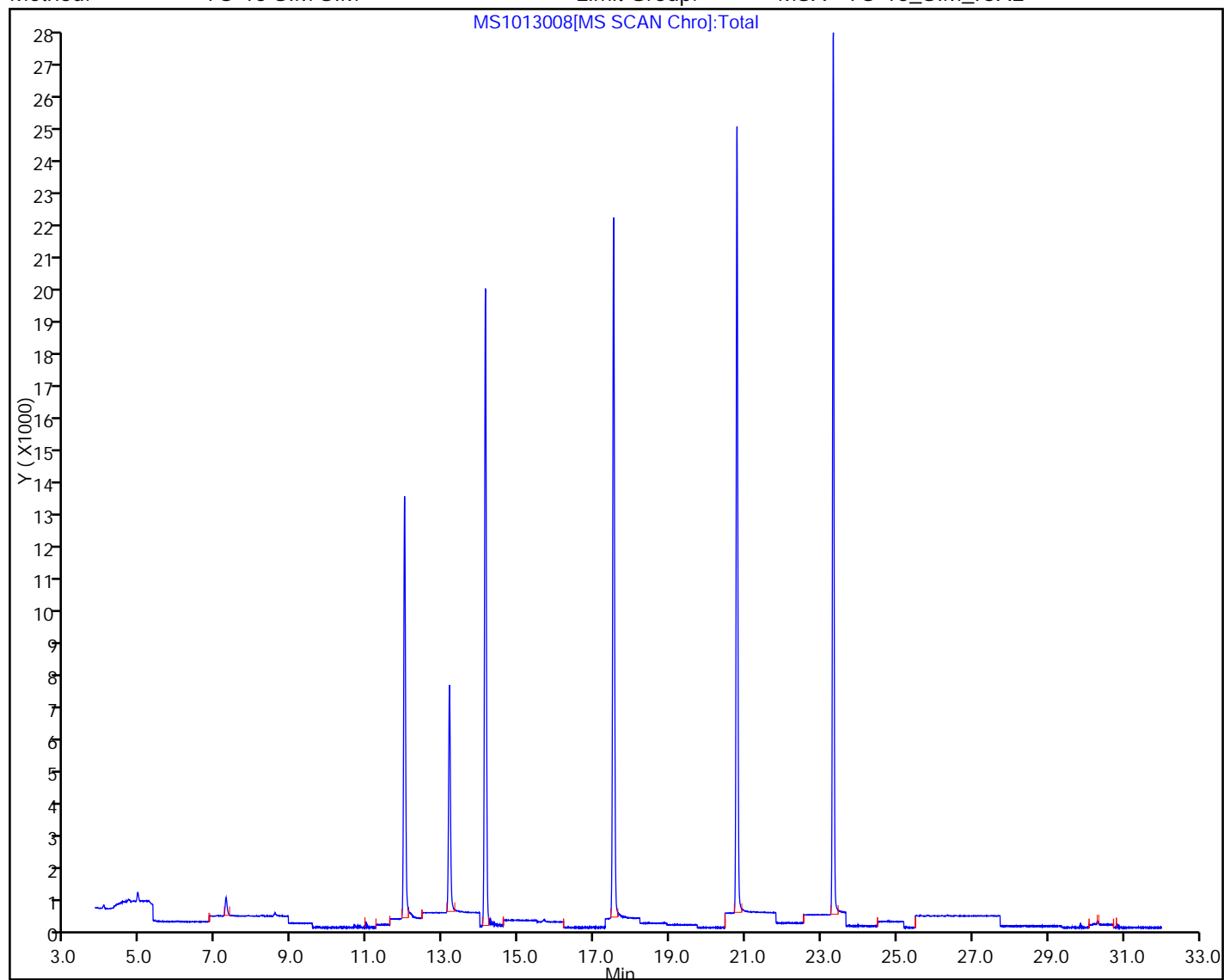
ALS Bottle#: 6 Worklist Smp#: 8

Purge Vol: 250.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO-15_SIM_ICAL



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-5891-1
 SDG No.: _____
 Client Sample ID: 34000225 Lab Sample ID: 320-5891-4
 Matrix: Air Lab File ID: MS1013010.d
 Analysis Method: TO-15 SIM Date Collected: 01/27/2014 00:00
 Sample wt/vol: 1000 (mL) Date Analyzed: 01/30/2014 23:53
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 35214 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
108-90-7	Chlorobenzene	ND		0.020
156-59-2	cis-1,2-Dichloroethene	ND		0.020
95-50-1	1,2-Dichlorobenzene	ND		0.050
75-34-3	1,1-Dichloroethane	ND		0.020
75-35-4	1,1-Dichloroethene	ND		0.020
127-18-4	Tetrachloroethene	ND		0.020
156-60-5	trans-1,2-Dichloroethene	ND		0.020
71-55-6	1,1,1-Trichloroethane	ND		0.020
79-01-6	Trichloroethene	ND		0.020
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030
75-01-4	Vinyl chloride	ND		0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	91		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		70-130
2037-26-5	Toluene-d8 (Surr)	100		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\MS1013010.d
 Lims ID: 320-5891-A-4 Lab Sample ID: 320-5891-4
 Client ID: 34000225
 Sample Type: Client
 Inject. Date: 30-Jan-2014 23:53:30 ALS Bottle#: 8 Worklist Smp#: 10
 Purge Vol: 250.000 mL Dil. Factor: 1.0000
 Sample Info: 320-5891-4
 Misc. Info.: 1000mL, Concert -34000225
 Operator ID: AJS Instrument ID: ATMS1
 Method: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\TO-15 SIM SIM.m
 Limit Group: MSA - TO-15_SIM_ICAL
 Last Update: 31-Jan-2014 10:29:41 Calib Date: 14-Jan-2014 05:56:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\SACCHROM\ChromData\ATMS1\20140113-9866.b\MS1011314.d
 Column 1 : Det: MS SCAN
 Process Host: XAWRK031

First Level Reviewer: shardaa

Date: 31-Jan-2014 10:25:46

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.980	11.984	-0.004	8	13609	1.94	
* 2 1,4-Difluorobenzene	114	14.121	14.119	0.002	1	45704	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.772	20.772	0.0	1	40150	2.00	
\$ 4 1,2-Dichloroethane-d4 (Surr)	65	13.168	13.173	-0.005	100	12333	1.96	
\$ 5 Toluene-d8 (Surr)	100	17.510	17.510	0.0	1	25200	2.00	
\$ 6 4-Bromofluorobenzene (Surr)	95	23.319	23.319	0.0	14	19941	1.83	

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\MS1013010.d

Injection Date: 30-Jan-2014 23:53:30

Instrument ID: ATMS1

Lims ID: 320-5891-A-4

Lab Sample ID: 320-5891-4

Client ID: 34000225

Operator ID: AJS

ALS Bottle#: 8

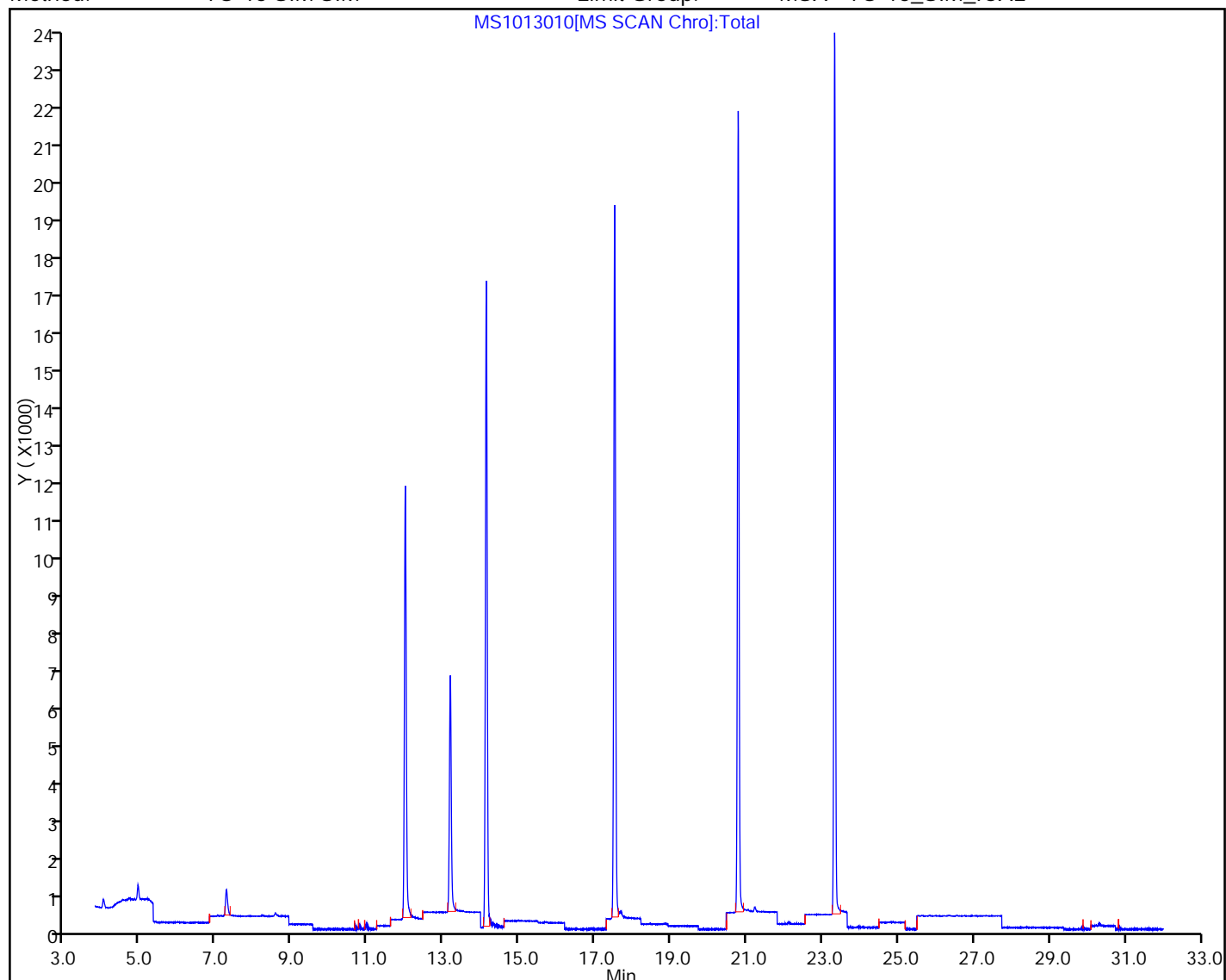
Worklist Smp#: 10

Purge Vol: 250.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO-15_SIM_ICAL



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-5891-1
 SDG No.: _____
 Client Sample ID: 34000533 Lab Sample ID: 320-5891-5
 Matrix: Air Lab File ID: MS1013011.d
 Analysis Method: TO-15 SIM Date Collected: 01/27/2014 00:00
 Sample wt/vol: 1000 (mL) Date Analyzed: 01/31/2014 00:48
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 35214 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
108-90-7	Chlorobenzene	ND		0.020
156-59-2	cis-1,2-Dichloroethene	ND		0.020
95-50-1	1,2-Dichlorobenzene	ND		0.050
75-34-3	1,1-Dichloroethane	ND		0.020
75-35-4	1,1-Dichloroethene	ND		0.020
127-18-4	Tetrachloroethene	ND		0.020
156-60-5	trans-1,2-Dichloroethene	ND		0.020
71-55-6	1,1,1-Trichloroethane	ND		0.020
79-01-6	Trichloroethene	ND		0.020
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030
75-01-4	Vinyl chloride	ND		0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	91		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	100		70-130
2037-26-5	Toluene-d8 (Surr)	100		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\MS1013011.d
 Lims ID: 320-5891-A-5 Lab Sample ID: 320-5891-5
 Client ID: 34000533
 Sample Type: Client
 Inject. Date: 31-Jan-2014 00:48:30 ALS Bottle#: 9 Worklist Smp#: 11
 Purge Vol: 250.000 mL Dil. Factor: 1.0000
 Sample Info: 320-5891-5
 Misc. Info.: 1000mL, Concert -34000533
 Operator ID: AJS Instrument ID: ATMS1
 Method: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\TO-15 SIM SIM.m
 Limit Group: MSA - TO-15_SIM_ICAL
 Last Update: 31-Jan-2014 10:29:41 Calib Date: 14-Jan-2014 05:56:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\SACCHROM\ChromData\ATMS1\20140113-9866.b\MS1011314.d
 Column 1 : Det: MS SCAN
 Process Host: XAWRK031

First Level Reviewer: shardaa

Date: 31-Jan-2014 10:26:20

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.976	11.984	-0.008	8	13492	1.94	
* 2 1,4-Difluorobenzene	114	14.118	14.119	-0.001	1	44599	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.772	20.772	0.0	1	39390	2.00	
\$ 4 1,2-Dichloroethane-d4 (Surr)	65	13.168	13.173	-0.005	100	11894	1.94	
\$ 5 Toluene-d8 (Surr)	100	17.506	17.510	-0.004	1	24614	2.00	
\$ 6 4-Bromofluorobenzene (Surr)	95	23.319	23.319	0.0	14	19392	1.81	

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\MS1013011.d

Injection Date: 31-Jan-2014 00:48:30

Instrument ID: ATMS1

Lims ID: 320-5891-A-5

Lab Sample ID: 320-5891-5

Client ID: 34000533

Operator ID: AJS

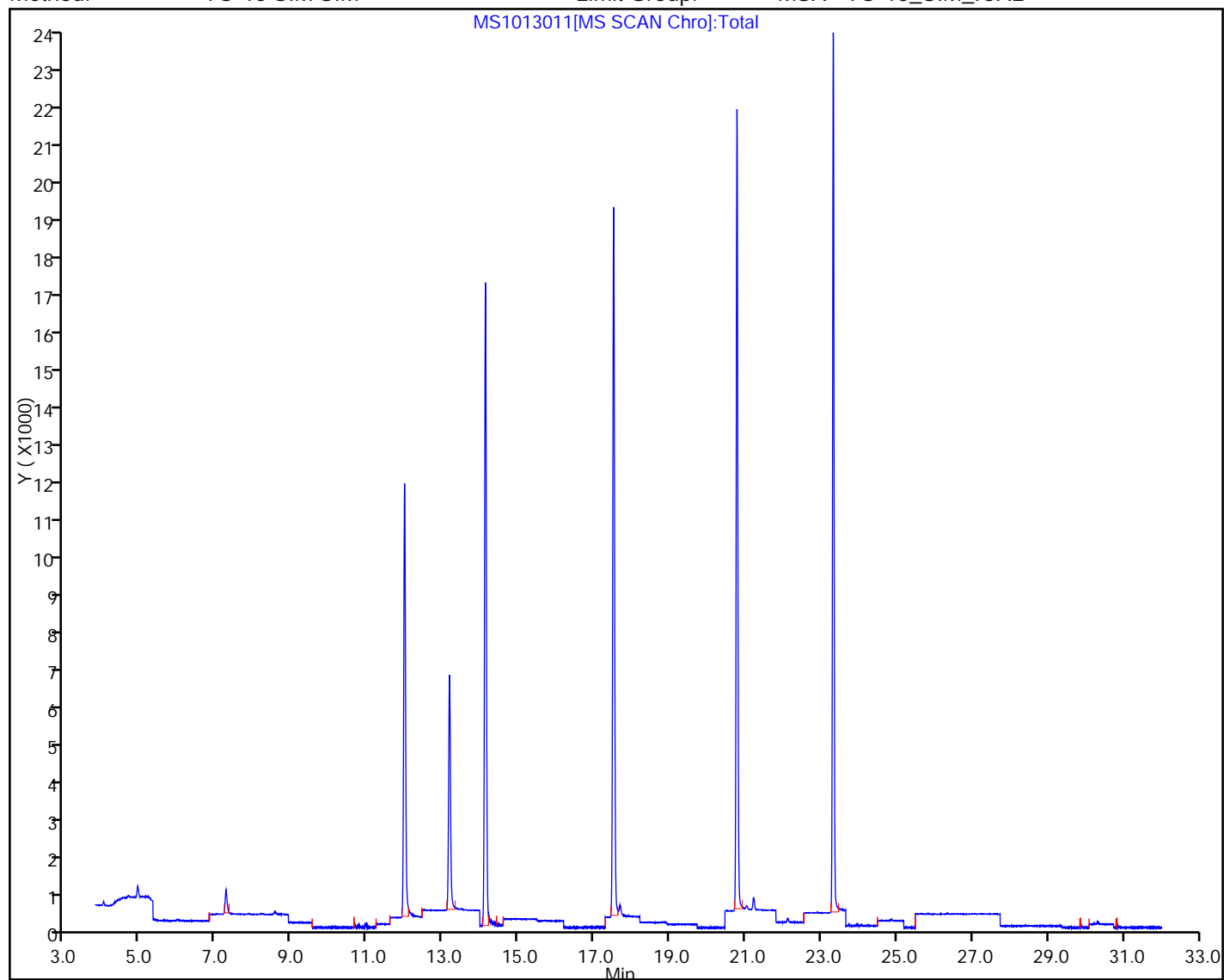
ALS Bottle#: 9 Worklist Smp#: 11

Purge Vol: 250.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO-15_SIM_ICAL



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-5891-1
 SDG No.: _____
 Client Sample ID: 34002025 Lab Sample ID: 320-5891-6
 Matrix: Air Lab File ID: MS1013012.d
 Analysis Method: TO-15 SIM Date Collected: 01/27/2014 00:00
 Sample wt/vol: 1000 (mL) Date Analyzed: 01/31/2014 01:44
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 35214 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
108-90-7	Chlorobenzene	ND		0.020
156-59-2	cis-1,2-Dichloroethene	ND		0.020
95-50-1	1,2-Dichlorobenzene	ND		0.050
75-34-3	1,1-Dichloroethane	ND		0.020
75-35-4	1,1-Dichloroethene	ND		0.020
127-18-4	Tetrachloroethene	ND		0.020
156-60-5	trans-1,2-Dichloroethene	ND		0.020
71-55-6	1,1,1-Trichloroethane	ND		0.020
79-01-6	Trichloroethene	ND		0.020
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030
75-01-4	Vinyl chloride	ND		0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	91		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		70-130
2037-26-5	Toluene-d8 (Surr)	100		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\MS1013012.d
Lims ID: 320-5891-A-6 Lab Sample ID: 320-5891-6
Client ID: 34002025
Sample Type: Client
Inject. Date: 31-Jan-2014 01:44:30 ALS Bottle#: 10 Worklist Smp#: 12
Purge Vol: 250.000 mL Dil. Factor: 1.0000
Sample Info: 320-5891-6
Misc. Info.: 1000mL, Concert -34002025
Operator ID: AJS Instrument ID: ATMS1
Method: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\TO-15 SIM SIM.m
Limit Group: MSA - TO-15_SIM_ICAL
Last Update: 31-Jan-2014 10:29:41 Calib Date: 14-Jan-2014 05:56:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\SACCHROM\ChromData\ATMS1\20140113-9866.b\MS1011314.d
Column 1 : Det: MS SCAN
Process Host: XAWRK031

First Level Reviewer: shardaa

Date: 31-Jan-2014 10:28:09

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.976	11.984	-0.008	8	13802	1.94	
* 2 1,4-Difluorobenzene	114	14.116	14.119	-0.003	1	46084	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.772	20.772	0.0	1	40735	2.00	
\$ 4 1,2-Dichloroethane-d4 (Surr)	65	13.168	13.173	-0.005	100	12395	1.96	
\$ 5 Toluene-d8 (Surr)	100	17.510	17.510	0.0	1	25444	2.00	
\$ 6 4-Bromofluorobenzene (Surr)	95	23.319	23.319	0.0	14	20162	1.82	

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\MS1013012.d

Injection Date: 31-Jan-2014 01:44:30

Instrument ID: ATMS1

Lims ID: 320-5891-A-6

Lab Sample ID: 320-5891-6

Client ID: 34002025

Operator ID: AJS

ALS Bottle#: 10

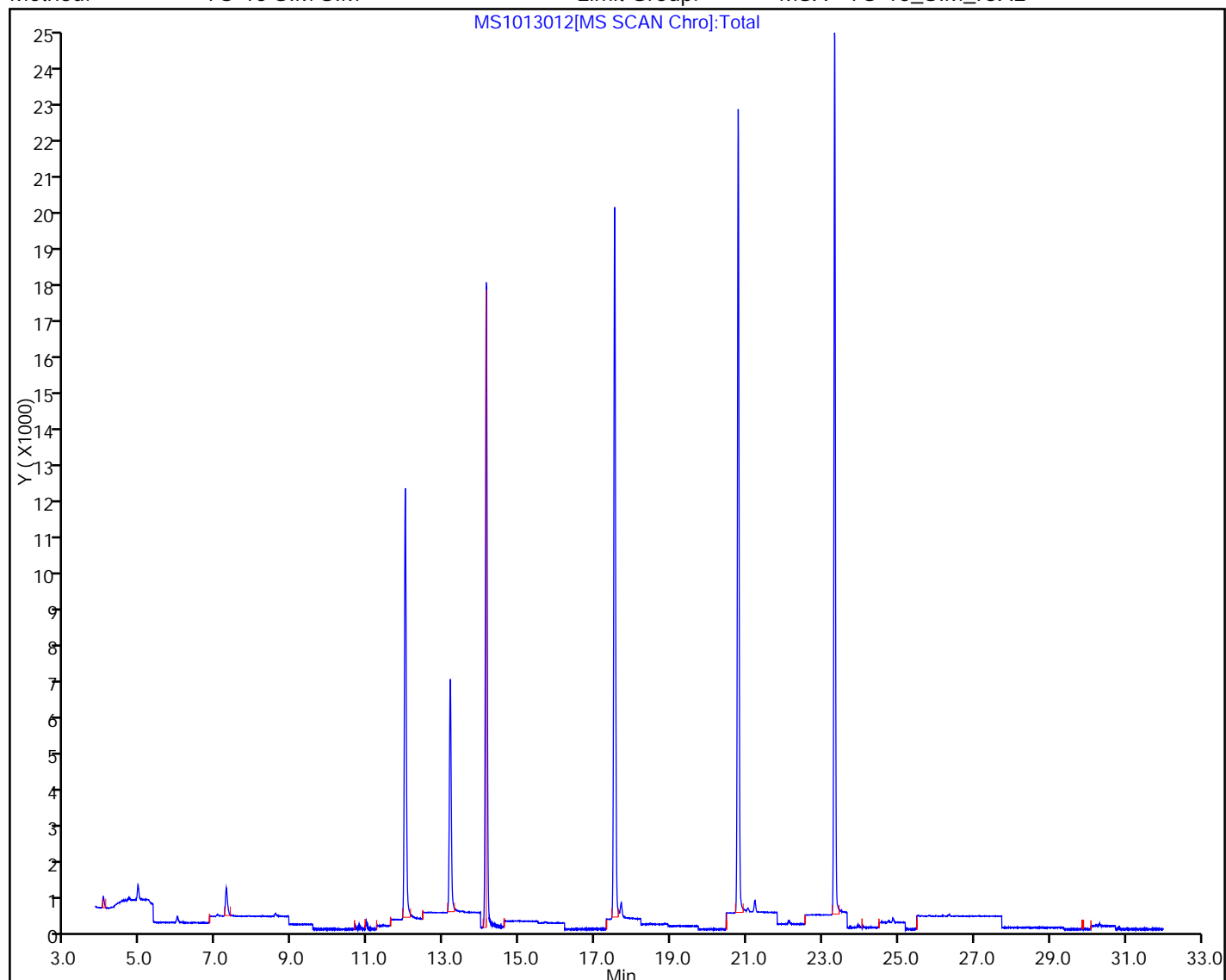
Worklist Smp#: 12

Purge Vol: 250.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO-15_SIM_ICAL



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-5891-1
 SDG No.: _____
 Client Sample ID: 34000573 Lab Sample ID: 320-5891-7
 Matrix: Air Lab File ID: MS1013013.d
 Analysis Method: TO-15 SIM Date Collected: 01/27/2014 00:00
 Sample wt/vol: 1000 (mL) Date Analyzed: 01/31/2014 02:39
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 35214 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
108-90-7	Chlorobenzene	ND		0.020
156-59-2	cis-1,2-Dichloroethene	ND		0.020
95-50-1	1,2-Dichlorobenzene	ND		0.050
75-34-3	1,1-Dichloroethane	ND		0.020
75-35-4	1,1-Dichloroethene	ND		0.020
127-18-4	Tetrachloroethene	ND		0.020
156-60-5	trans-1,2-Dichloroethene	ND		0.020
71-55-6	1,1,1-Trichloroethane	ND		0.020
79-01-6	Trichloroethene	ND		0.020
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030
75-01-4	Vinyl chloride	ND		0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	93		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		70-130
2037-26-5	Toluene-d8 (Surr)	101		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\MS1013013.d
Lims ID: 320-5891-A-7 Lab Sample ID: 320-5891-7
Client ID: 34000573
Sample Type: Client
Inject. Date: 31-Jan-2014 02:39:30 ALS Bottle#: 11 Worklist Smp#: 13
Purge Vol: 250.000 mL Dil. Factor: 1.0000
Sample Info: 320-5891-7
Misc. Info.: 1000mL, Concert -34000573
Operator ID: AJS Instrument ID: ATMS1
Method: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\TO-15 SIM SIM.m
Limit Group: MSA - TO-15_SIM_ICAL
Last Update: 31-Jan-2014 10:29:41 Calib Date: 14-Jan-2014 05:56:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\SACCHROM\ChromData\ATMS1\20140113-9866.b\MS1011314.d
Column 1 : Det: MS SCAN
Process Host: XAWRK031

First Level Reviewer: shardaa

Date: 31-Jan-2014 10:28:45

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.980	11.984	-0.004	8	13829	1.94	
* 2 1,4-Difluorobenzene	114	14.116	14.119	-0.003	1	46591	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.773	20.772	0.001	1	41807	2.00	
\$ 4 1,2-Dichloroethane-d4 (Surr)	65	13.168	13.173	-0.005	100	12306	1.92	
\$ 5 Toluene-d8 (Surr)	100	17.510	17.510	0.0	1	25994	2.02	
\$ 6 4-Bromofluorobenzene (Surr)	95	23.319	23.319	0.0	14	21126	1.86	

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS1\20140130-10256.b\MS1013013.d

Injection Date: 31-Jan-2014 02:39:30

Instrument ID: ATMS1

Lims ID: 320-5891-A-7

Lab Sample ID: 320-5891-7

Client ID: 34000573

Operator ID: AJS

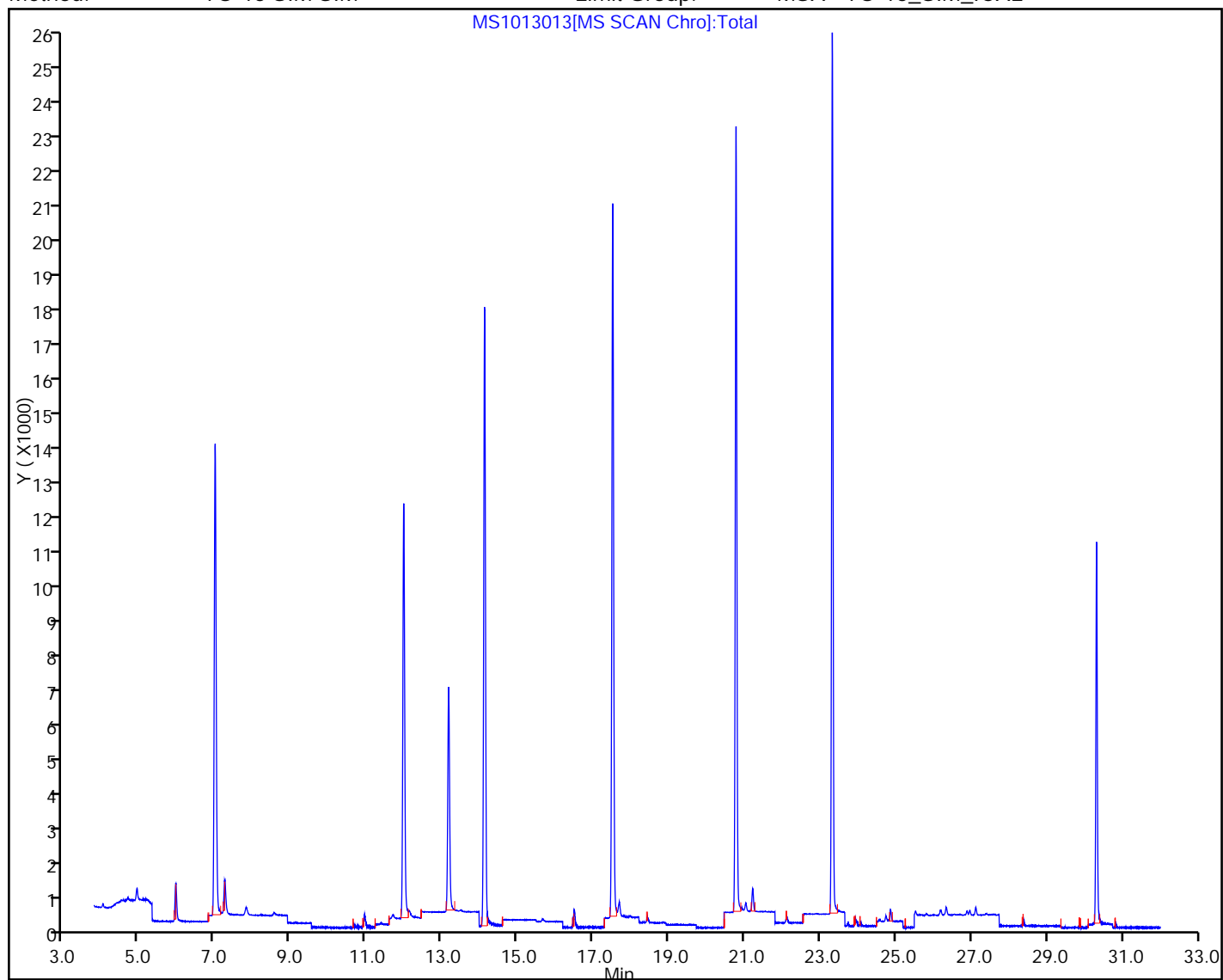
ALS Bottle#: 11 Worklist Smp#: 13

Purge Vol: 250.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO-15_SIM_ICAL



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-5891-1
 SDG No.: _____
 Client Sample ID: 34001519 Lab Sample ID: 320-5891-11
 Matrix: Air Lab File ID: MS1013108.d
 Analysis Method: TO-15 SIM Date Collected: 01/27/2014 00:00
 Sample wt/vol: 1000 (mL) Date Analyzed: 01/31/2014 22:04
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 35302 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
108-90-7	Chlorobenzene	ND		0.020
156-59-2	cis-1,2-Dichloroethene	ND		0.020
95-50-1	1,2-Dichlorobenzene	ND		0.050
75-34-3	1,1-Dichloroethane	ND		0.020
75-35-4	1,1-Dichloroethene	ND		0.020
127-18-4	Tetrachloroethene	ND		0.020
156-60-5	trans-1,2-Dichloroethene	ND		0.020
71-55-6	1,1,1-Trichloroethane	ND		0.020
79-01-6	Trichloroethene	ND		0.020
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030
75-01-4	Vinyl chloride	ND		0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	89		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	102		70-130
2037-26-5	Toluene-d8 (Surr)	102		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS1\20140131-10278.b\MS1013108.d
 Lims ID: 320-5891-A-11 Lab Sample ID: 320-5891-11
 Client ID: 34001519
 Sample Type: Client
 Inject. Date: 31-Jan-2014 22:04:30 ALS Bottle#: 7 Worklist Smp#: 9
 Purge Vol: 250.000 mL Dil. Factor: 1.0000
 Sample Info: 320-5891-11
 Misc. Info.: 1000mL
 Operator ID: AJS Instrument ID: ATMS1
 Method: \\SACCHROM\ChromData\ATMS1\20140131-10278.b\TO-15 SIM SIM.m
 Limit Group: MSA - TO-15_SIM_ICAL
 Last Update: 03-Feb-2014 09:52:26 Calib Date: 14-Jan-2014 05:56:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\SACCHROM\ChromData\ATMS1\20140113-9866.b\MS1011314.d
 Column 1 : Det: MS SCAN
 Process Host: XAWRK019

First Level Reviewer: shardaa

Date: 03-Feb-2014 09:52:26

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.976	11.980	-0.004	9	16625	1.94	
* 2 1,4-Difluorobenzene	114	14.118	14.119	-0.001	1	55677	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.772	20.768	0.004	1	48762	2.00	
\$ 4 1,2-Dichloroethane-d4 (Surr)	65	13.163	13.168	-0.006	100	15128	1.98	
\$ 5 Toluene-d8 (Surr)	100	17.506	17.510	-0.004	1	31317	2.04	
\$ 6 4-Bromofluorobenzene (Surr)	95	23.319	23.312	0.007	15	23549	1.78	

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS1\20140131-10278.b\MS1013108.d

Injection Date: 31-Jan-2014 22:04:30

Instrument ID: ATMS1

Lims ID: 320-5891-A-11

Lab Sample ID: 320-5891-11

Client ID: 34001519

Operator ID: AJS

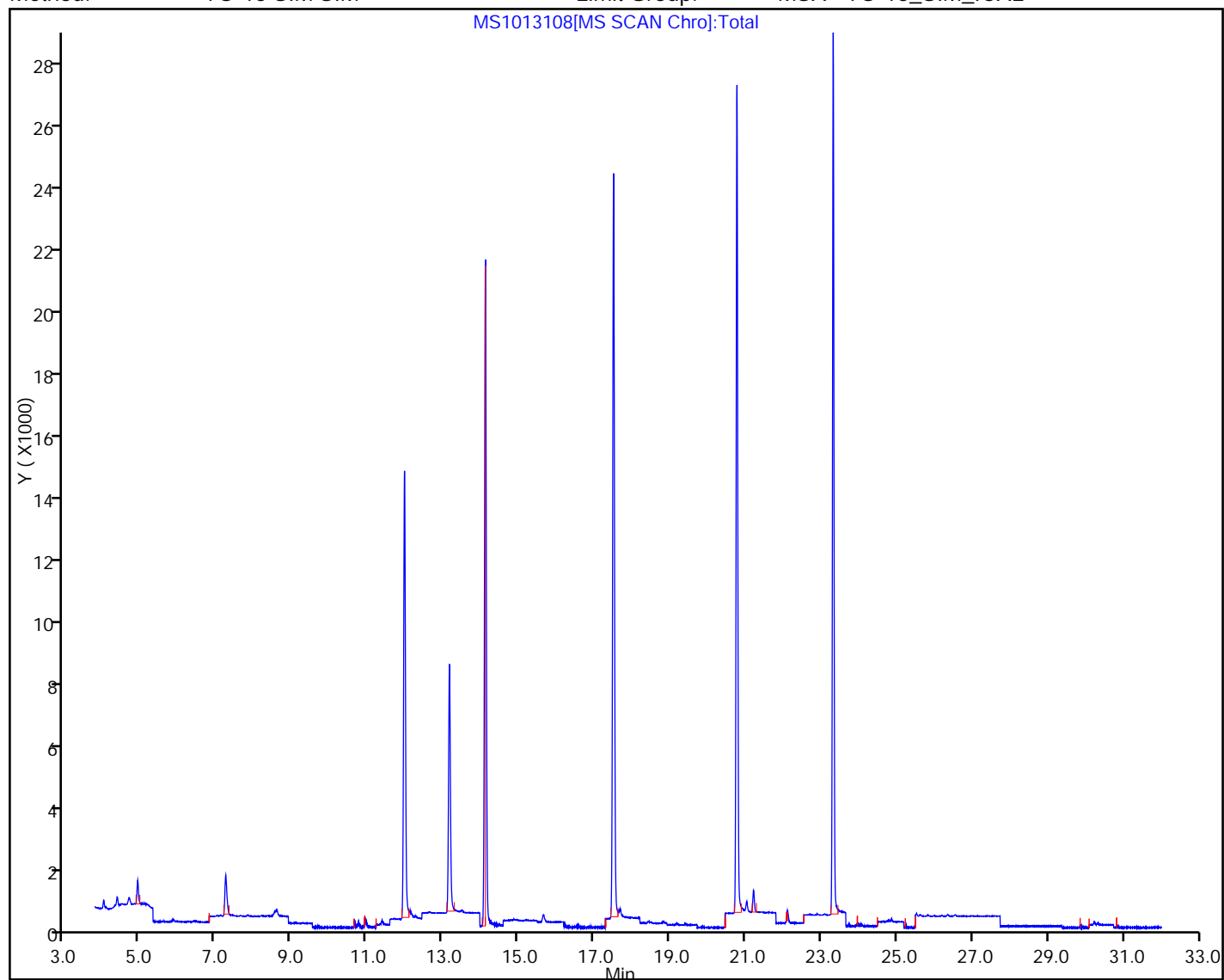
ALS Bottle#: 7 Worklist Smp#: 9

Purge Vol: 250.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO-15_SIM_ICAL



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-5891-1
 SDG No.: _____
 Client Sample ID: 34000338 Lab Sample ID: 320-5891-12
 Matrix: Air Lab File ID: MS1013109.d
 Analysis Method: TO-15 SIM Date Collected: 01/27/2014 00:00
 Sample wt/vol: 1000 (mL) Date Analyzed: 01/31/2014 23:01
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 35302 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
108-90-7	Chlorobenzene	ND		0.020
156-59-2	cis-1,2-Dichloroethene	ND		0.020
95-50-1	1,2-Dichlorobenzene	ND		0.050
75-34-3	1,1-Dichloroethane	ND		0.020
75-35-4	1,1-Dichloroethene	ND		0.020
127-18-4	Tetrachloroethene	ND		0.020
156-60-5	trans-1,2-Dichloroethene	ND		0.020
71-55-6	1,1,1-Trichloroethane	ND		0.020
79-01-6	Trichloroethene	ND		0.020
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030
75-01-4	Vinyl chloride	ND		0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	88		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		70-130
2037-26-5	Toluene-d8 (Surr)	101		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS1\20140131-10278.b\MS1013109.d
 Lims ID: 320-5891-A-12 Lab Sample ID: 320-5891-12
 Client ID: 34000338
 Sample Type: Client
 Inject. Date: 31-Jan-2014 23:01:30 ALS Bottle#: 8 Worklist Smp#: 10
 Purge Vol: 250.000 mL Dil. Factor: 1.0000
 Sample Info: 320-5891-12
 Misc. Info.: 1000mL
 Operator ID: AJS Instrument ID: ATMS1
 Method: \\SACCHROM\ChromData\ATMS1\20140131-10278.b\TO-15 SIM SIM.m
 Limit Group: MSA - TO-15_SIM_ICAL
 Last Update: 03-Feb-2014 09:52:26 Calib Date: 14-Jan-2014 05:56:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\SACCHROM\ChromData\ATMS1\20140113-9866.b\MS1011314.d
 Column 1 : Det: MS SCAN
 Process Host: XAWRK019

First Level Reviewer: shardaa

Date: 03-Feb-2014 16:49:44

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.976	11.980	-0.004	9	14760	1.94	
* 2 1,4-Difluorobenzene	114	14.114	14.119	-0.005	1	48943	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.773	20.768	0.005	1	42531	2.00	
\$ 4 1,2-Dichloroethane-d4 (Surr)	65	13.162	13.168	-0.006	100	13450	2.00	
\$ 5 Toluene-d8 (Surr)	100	17.507	17.510	-0.003	1	27257	2.02	
\$ 6 4-Bromofluorobenzene (Surr)	95	23.314	23.312	0.002	14	20383	1.77	

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS1\20140131-10278.b\MS1013109.d

Injection Date: 31-Jan-2014 23:01:30

Instrument ID: ATMS1

Lims ID: 320-5891-A-12

Lab Sample ID: 320-5891-12

Client ID: 34000338

Operator ID: AJS

ALS Bottle#: 8 Worklist Smp#: 10

Purge Vol: 250.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO-15_SIM_ICAL

